Hsi Lai Monastery Site

Initial Study

prepared by

County of Los Angeles
Department of Regional Planning
320 West Temple Street
Los Angeles, California 90012
Contact: Jolee Hui, Regional Planner

prepared with the assistance of

Rincon Consultants, Inc.
250 East 1st Street, Suite 1400
Los Angeles, California 90012

October 2020

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Initial Study

1. Project Title

Hsi Lai Monastery Site

2. Lead Agency Name and Address

County of Los Angeles
Department of Regional Planning
320 West Temple Street
Los Angeles, California 90012

3. Contact Person and Contact Info

Jolee Hui, Regional Planner
jhui@planning.lacounty.gov
213-974-6435

4. Project Sponsor's Name and Address

International Buddhist Progress Society
2456 Glenmark Drive
Hacienda Heights, California 91745

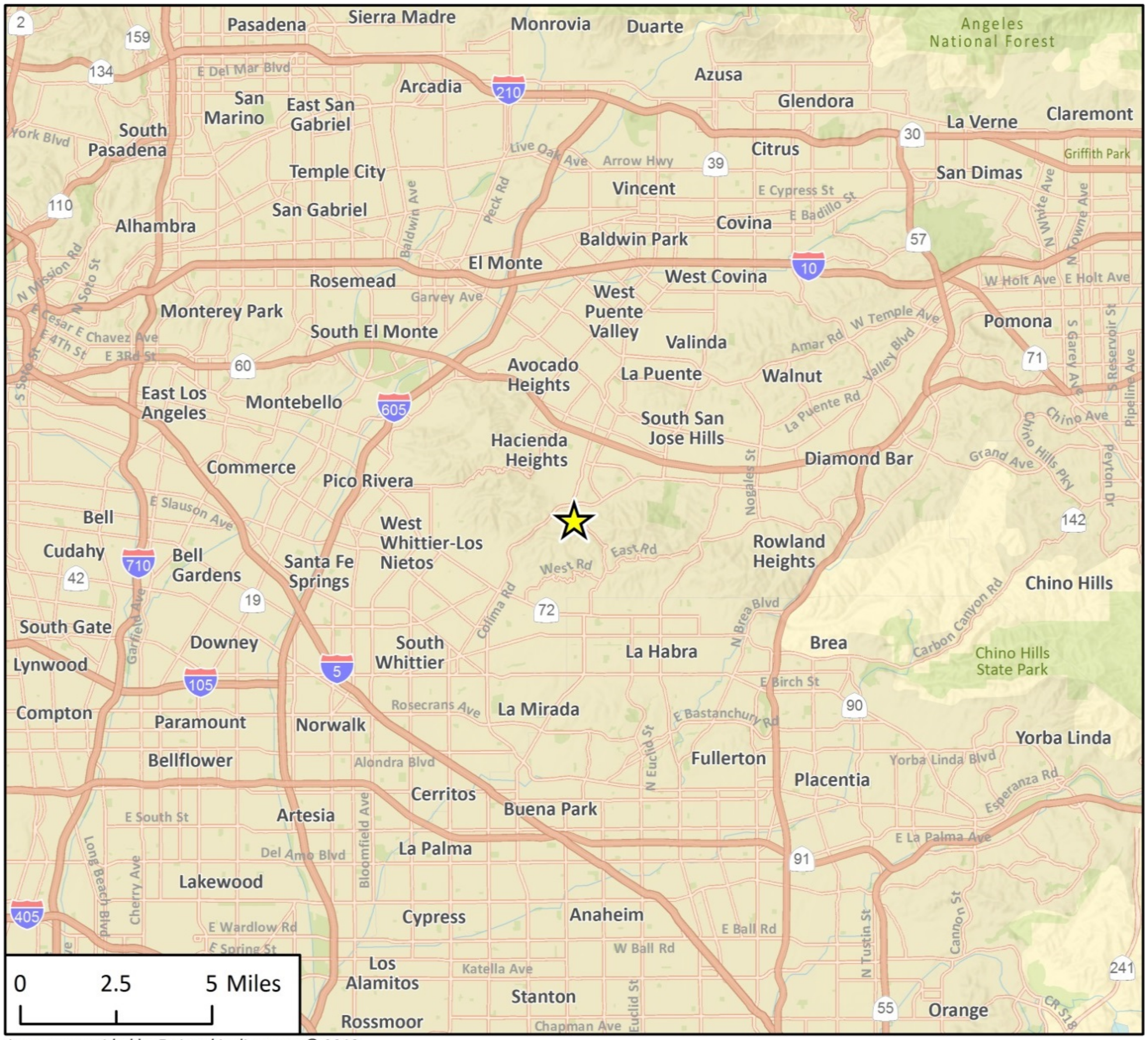
5. Project Location

The project site is located at 15866 Draper Road, Hacienda Heights, California 91745, east of South Hacienda Boulevard and 1.5 miles south of California State Highway 60 (SR-60) in the unincorporated community of Hacienda Heights in the County of Los Angeles. Situated at the southern edge of the San Gabriel Valley, the site is approximately 21 miles east of the Los Angeles Civic Center. Figure 1 shows the regional location of the site and Figure 2 shows the project site within its community context. The Assessor's Parcel Numbers (APN) are 8240-036-021, 8291-035-020, and 8291-035-021.

6. General Plan Designation

The site has a land use designation of Rural Land (RL2) within the Hacienda Heights Community Plan, which is a component of the Los Angeles County General Plan 2035 (Los Angeles County Department of Regional Planning [DRP] 2011). The intent of the RL2 designation is to provide lands suitable for agricultural production, preserve areas of significant natural and scenic resources, and limit intensive development in areas subject to natural hazards or lacking in essential services and infrastructure. Intended uses of RL2 parcels include single-family residential development; rural, equestrian, agricultural, and other related activities; and local-servicing ancillary commercial uses.

Figure 1 Regional Location



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Project Location

N

Figure 2 Project Site Location

Imagery provided by Microsoft Bing and its licensors © 2019.

Fig 2 Project Site Location Map

7. Zoning

The two northern project parcels and the eastern portion of the large vacant parcel (APN 8240-036-021) have a zoning designation of Light Agriculture – One Acre Lot Size Minimum Requirement (A-1-1). The western portion of the large vacant parcel has a zoning designation of Heavy Agriculture – One Acre Lot Size Minimum (A-2-1) (Los Angeles County DRP 2019).

8. Surrounding Land Uses and Setting

The project site is at the southern edge of the unincorporated community of Hacienda Heights, along the northern slopes of the Puente Hills of Los Angeles County. The east side of the project site is bordered by South Hacienda Boulevard and a Southern California Edison transmission line along the southwesterly site boundary. Adjacent existing land uses include open space conservation land to the south, single-family residences to the south beyond the Southern California Edison transmission line, single-family residences to the west and north in the adjacent neighborhood, and the Hsi Lai Temple and single-family residences east across South Hacienda Boulevard.

9. Description of Project

The project would involve the development of the site with a monastery retreat center with associated accessory uses. The project site is located west of South Hacienda Boulevard, directly across the Boulevard from the existing Fo Guang Shan Hsi Lai Temple (Temple), which is located at 3456 Glenmark Drive. The project site is comprised of 28.96 acres of rugged topography that contains three main hills flanked with several steep slopes. The development seeks to minimize disruption to the existing topography and natural setting by integrating the proposed buildings into the landscape to the extent feasible. The purpose of the project is to provide interim accommodations for the International Buddhist Progress Society's (IBPS) senior monastics, accommodate cultural exchange activities with the surrounding neighborhood, and provide learning and meditation facilities for members of the Temple community. The use of the proposed buildings would be meditation halls of various sizes, classrooms and other instructional spaces, dormitories of various sizes, administrative offices and multifunctional recreational spaces.

The project would involve the development of 17 buildings concentrated on the northern portion of the site (APN 8240-036-021) with a combined total of 143,671 square feet of programmed space, including the renovation of one existing 5,318-square-foot residential building into a volunteers' dormitory (APN 8291-035-021). The remaining portion of the site (APN 8291-035-020) would remain undeveloped except for new landscaping and walkways. The property would contain three types of pedestrian pathways: a meandering, on-site trail circulation system connecting buildings, fireproof elevated decks connecting buildings where the native grade would be unchanged, and paved paths adjacent to Draper Road.

The proposed buildings would be situated below existing ridgelines aligned with existing hillside contours, and designed to be visually compatible with the natural features of the site. The building palate was chosen consistent with Buddhist beliefs, and would include locally sourced, fire resistant materials. The building massing would be of a scale consistent with the residential structures to the north of the site. The proposed design strategy would make use of smaller building blocks wherever possible to minimize the grading footprint and provide the maximum amount of undisturbed open space on the site; consistent with the objectives of the Los Angeles County Hillside Grading Ordinance.

Development of the project would involve clearing portions of the site, rough grading, earthwork compaction, construction of retaining walls, excavation for subterranean parking, pouring of concrete building pads and asphalt walkways to access the proposed buildings and as well as construction of the proposed structures. The 17 proposed buildings would consist of the following five different building types (with nine different floor plans):

- **Building A** would house the main multi-function hall with open areas for cultural gatherings and meditation purposes. Support service areas, offices, and restrooms would also be provided within Building A. Building A would also contain seven levels of underground parking with 266 parking spaces. Additional parking would be provided along the site access roadway. The reception center to welcome guests would be located at the top level of parking adjacent to the vehicular entrance plaza.
- **Building B** would contain a tearoom, cafeteria, and the main food preparation kitchen. The two main buildings (A and B) would be located around a central plaza by the Monastery entrance from South Hacienda Boulevard.
- **Buildings C and D** (two of type C and three of type D) would be arranged along the north-facing slopes below the ridgeline running east to west across the site toward South Hacienda Boulevard. These buildings would contain classrooms, offices, and meditation facilities for smaller groups and short-term visitors.
- **Buildings E, and F** would contain multifunction recreation facilities, dining and meeting spaces for members of the monastic community, IBPS members, and visitors.
- **Buildings G, H and I** would provide dormitory living accommodations for visitors and senior monastics. These buildings would be located furthest west on the project site for maximum privacy.
- **Building J is** the existing single-family home located on APN 8240-035-021. It would undergo interior renovations to provide housing for up to 14 volunteers and retain existing use of the four vehicle garage.

Table 1 provides a detailed summary of the project components and Figure 3 shows the proposed project site plan.

Table 1 Project Characteristics

Building	Use Description	Area (SF)	No. Buildings	Total Area (SF)
A	Main Hall	22,584	1	22,584
B	Cafeteria & Tea Room	19,631	1	19,631
C1	Small meditation hall	7,860	1	7,860
C2	Small meditation hall	15,663	1	15,663
D	Classroom building	4,313	3	12,939
E	Multifunction hall	13,753	1	13,753
F	Multifunction hall	7,975	1	7,975
G	Dormitory	7,704	2	15,408
H	Dormitory	4,182	2	8,364
I	Dormitory	3,544	4	14,176
J	Dormitory (existing residence)	5,318	1 (existing)	5,318
Total			**17 (+1 existing)**	**143,671**

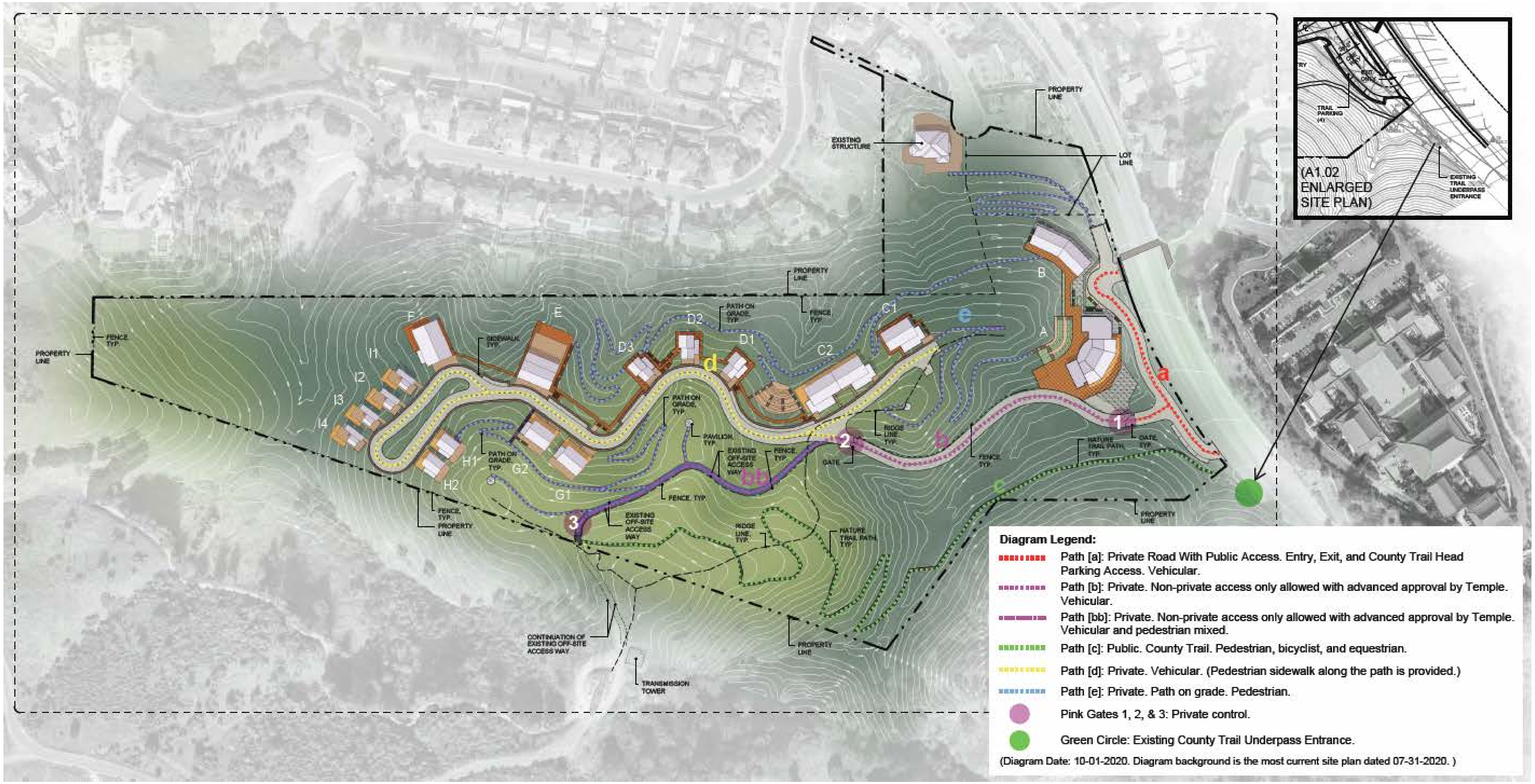
Site Access

Current site access is provided by an east-west oriented, primarily unpaved, vehicular road and multi-use (hiking, biking, and equestrian) public trail, which generally runs through the middle of the project site (locally recognized as Draper Road). The eastern portion of the existing access way would be realigned and improved as part of the project to provide private and emergency vehicular access to the proposed buildings. Off-site access for fire and utility agencies would continue to be provided through the private monastery property along the existing access way as shown in Figure 3 (see "Existing Off-site Access Way"). The existing substandard public trail located within the Draper Road alignment would be abandoned and a new multi-use public trail (meeting County Department of Parks & Recreation public trail standards) would be developed along the southeasterly portion of the project site as part of the project, as described the *Publicly Accessible Open Spaces* section below. The project would include two proposed driveways along South Hacienda Boulevard. The northern driveway would align with Glenmark Drive. A new signal would be installed at the intersection to allow for all access in and out of the project site. The southern driveway would provide a southbound exit only, onto South Hacienda Boulevard.

Parking

Parking would be primarily provided in a structured seven-level subterranean garage under Building A. This would be used by Monastery guests and visitors. The subterranean parking garage would contain 266 parking spaces. A total of 15 additional on-street parking spaces would be designated along the project access driveway, near Building Types C, D, and E. A total of 12 parking spaces would be in ground-level garages by Building Types G and H for use by dormitory occupants. The volunteers' dormitory (APN 8240-035-021; Building J) would retain the four-car garage for use by occupants.

Figure 3 Proposed Site Plan



Source: NAC Architecture, 2020.

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The project would provide four additional parking spaces for users of the public nature trail, which are not included in the required parking space total. Those four parking spaces would be located along the southern access driveway on the project site.

Table 2 Parking

Parking Type	Building Type in Vicinity	Parking Spaces
Underground Garage	A	266
Street	Near C, D, and E	15
Ground-Level Garage	G, H	12
Parking for Volunteers' Dormitory	J	4 (existing)
Total Parking for the Monastery		**297**
Additional Parking		
Trail Head Public Parking		4

Hillside Design Guidelines

The policies of the Los Angeles County General Plan, as well as applicable area and community plans, seek to preserve significant natural features in hillside areas. The County's Hillside Design Guidelines are intended to implement those policies by ensuring that hillside development projects use sensitive and creative engineering, architectural, and landscaping site design techniques. The Guidelines also help ensure that hillside development projects are designed in a manner that allows the project to meet the findings of the Hillside Management Areas Ordinance. To accomplish this goal, the Guidelines include specific and measurable design techniques that can be applied to residential, commercial, industrial, and other types of projects. The Guidelines are divided into five major design categories containing a variety of sensitive hillside design measures. The five major categories are:

- Site Planning
- Grading and Facilities
- Road Circulation
- Building Design
- Landscaping

The project is subject to the Hillside Management Areas Ordinance. It has therefore been designed to be consistent with the County's Hillside Design Guidelines, which require placing structures on gentler slopes, utilizing terraced building pads, and preserving existing ridgelines. The primary structure that the public will interface with fronts onto Hacienda Boulevard and is of a scale consistent with the Temple to the east. The balance of the proposed programed spaces consisting of dormitory, classroom, and office functions are distributed in smaller buildings on the interior of the site. The strategy of providing of multiple buildings of smaller massing allows the buildings to be placed within existing hillsides and topography, thus minimizing the amount of overall grading required to accommodate the program area. The visual impact to the existing ridgelines from the adjacent residential areas to the north is therefore minimized. As directed by the Hillside Ordinance, the buildings are sited to not project above the existing ridgelines when viewed from the surround residential areas. This strategy extends to site access roadways as well; they are proposed to be curved private roads aligned with the existing topography, crossing the existing ridgeline only once at a naturally occurring low point. The project is designed to preserve existing terrain and vegetation communities whenever possible. The proposed landscape plan for the project entails the addition of planting primarily along the northern edge of the project site to screen the visual impact of the proposed buildings from the adjacent communities to the north of the site.

Sustainability Features

The project would also comply with all standards set in California Building Code (CBC) Title 24, which would minimize the wasteful, inefficient, or unnecessary consumption of energy resources during operation**.** California's Green Building Standards Code (CALGreen; California Code of Regulations, Title 24, Part 11) requires implementation of water efficient faucets and toilets, and energy efficient light fixtures and building materials into the design of new construction projects. Furthermore, the 2019 Building Energy Efficiency Standards (CBC Title 24, Part 6) requires newly constructed buildings to meet energy performance standards set by the Energy Commission.

In 2008, Los Angeles County adopted the Green Building Program, which included the Drought-Tolerant Landscaping, Green Building, and Low Impact Development Ordinances (the Ordinances), and created an Implementation Task Force and Technical Manual. In November 2013, in response to the mandates set forth in CALGreen (2010 California Green Building Standards Code), the Board of Supervisors adopted the Los Angeles County Green Building Standards Code (Title 31). The County has since adopted the Green Building Standards, which follow the 2019 California Green Building Standards Code. The project would be subject to Title 31.

Landscaping

The project landscape plans (see Figure 4) incorporate low to moderate water use classification plants and trees throughout the project site. Planting selections include a variety of trees that would provide shade, including oak trees to replace those being removed during construction[1].

Private Open and Outdoor Spaces

The project would retain 11.82 acres (54 percent of open space area) as natural open space and an additional 10.05 acres (46 percent of open space area) as improved open space, consistent with the metrics established in the Hillside Ordinance. Improved, private open space would include pedestrian pathways and structured walkways through the property, two hilltop pavilions, proposed orchards on select ridges amongst proposed pathways and walkways in the northeast and southwest corners of the project site, and plazas adjacent to select proposed buildings. The two pavilions would not be publicly accessible and reserved for use by the Monastery.

Proposed site plans also indicate two pedestrian pathways connected to the western portion of the existing off-site access way, leading to proposed Building H1 located in the southwestern portion of the site and the proposed access driveway southwest of Building D3. The project site plan includes several meandering pedestrian pathways, as well as structured walkways that are elevated in select portions, between proposed buildings on the northern portion of the site, which would be used by Monastery visitors. Monastery pathways shall be designed to allow for clear circulation from each dormitory to classroom without the need of motorized vehicles. Three types of private-use pedestrian pathways are proposed for the project site:

[1] Individually protected trees would be replaced at a 2:1 ratio for standard sized oak trees and 10:1 for heritage oaks removed during construction activities pursuant to the County Oak Tree Ordinance.

Figure 4 Proposed Landscape Plan

Source: SALT Landscape Architects, 2020.

- Campus trail circulation, which would mostly consist of ground-level pedestrian pathways and structured walkways, designed to follow County of Los Angeles Trails Manual guidelines for "Natural Trail 2";
- Fireproof decks, mostly located around building perimeters, to connect buildings where the native grade is unchanged; and
- Paved paths adjacent to the proposed fire lane.

Publicly Accessible Open Spaces

The project also includes a designated public nature trail to be established in the southeastern portion of the site, which would connect to the Arroyo San Miguel trail network off-site to the southwest. The public trail would be designed and built in compliance with the County of Los Angeles Trails Manual guidelines for "Natural Trail 2" with a five- to eight-foot trail width designed to support medium to high intensity use. This new trail would segregate the trail users away from the proposed private access driveway (see Figure 3). The project would include the construction of four parking spaces for trail users immediately adjacent to where the trail enters the site.

Construction and Timeline

Project construction is estimated to occur from June 2022 to the end of 2024, with project occupancy in late 2024/early 2025. Construction phases would include site preparation, grading, building construction, paving, and architectural coating. Approximately 114,160 cubic yards of soil would be cut from the site, 27,400 cubic yards of which would be use on-site as fill and 86,720 cubic yards exported off-site. However, total exported soil could total 91,056 cubic yards based on a five percent bulking factor. Construction access to the site would be from South Hacienda Boulevard, onto the existing access way (recognized as Draper Road). Construction trips from the site, including soil haul trips, would exit onto South Hacienda Boulevard, and travel north to the freeway.

10. Other Public Agencies Whose Approval is Required

No public agencies other than the County of Los Angeles would have discretionary approval power over the project.

11. Have California Native American Tribes Traditionally and Culturally Affiliated with the Project Area Requested Consultation Pursuant to Public Resources Code Section 21080.3.1?

The County of Los Angeles, as lead agency, will initiate Tribal Cultural outreach for the Project per Assembly Bill 52. The results of Native American Tribal consultation will be included in the forthcoming Environmental Impact Report.

Overview of CEQA Guidelines §15064

The County of Los Angeles (County) Department of Regional Planning (DRP), as the lead agency under the California Environmental Quality Act (CEQA), has sponsored this Initial Study (IS) to evaluate the potential environmental impacts associated with the construction and operation of the Hsi Lai Monastery Site (Project). As part of the permitting process for DRP, the Project is required to undergo an environmental review pursuant to CEQA.

Preparation of an Initial Study

When proposed activities meet the definition of a project under *CEQA Guidelines* Sections 15377 (“Private Project”) and 15378 (“Project”) and are not exempt, the lead agency is required to prepare an environmental impact analysis and disclosure document. The intent of the document is to:

1. Inform the decision-maker, responsible and trustee agencies, and the general public of the environmental effects of the project, and
2. Mitigate those effects to the greatest extent feasible.

Once completed pursuant to *CEQA Guidelines* Section 15064, the IS provides the lead agency with direction on which level of CEQA documentation is appropriate for a given project. For projects where the IS determines that a potentially significant and unavoidable impact would occur, an EIR is appropriate. For projects that would have little to no effect on the environment, either a categorical exemption or negative declaration (ND) is generally appropriate. For projects where mitigation is needed to reduce a potentially significant impact to a less-than-significant level and no significant unavoidable impacts would result, an MND is prepared.

Based on the results of the IS, the County has determined that the project would result in potentially significant impacts. Therefore, the appropriate CEQA compliance document is an Environmental Impact Report (EIR).

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Environmental Factors Potentially Affected

This project would potentially affect the environmental factors checked below, involving at least one impact that is "Potentially Significant" or "Less than Significant with Mitigation Incorporated" as indicated by the checklist on the following pages.

■	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

Determination

Based on 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 to 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 "less than significant with mitigation incorporated" 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 potential significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Jolee Hui

11/2/2020

Signature

Date

Jolee Hui

Regional Planner

Printed Name

Title

Environmental Checklist

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 that would adversely affect daytime or nighttime views in the area?	■	□	□	□

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

The project site is mostly undeveloped, except for the single-family residence on APN 8240-035-021, and consists of varying hillsides and diverse topography which provide potential scenic vistas for the surrounding area. The vision statement in the Hacienda Heights Community Plan (HHCP) (Los Angeles County DRP 2011) expresses the importance of the views of surrounding hillsides and open space areas. A ridgeline that is specifically identified in the HHCP also crosses the property and project area from east to west. More broadly, the Puente Hills are identified as a scenic hillside in the Los Angeles County General Plan 2035 Conservation and Natural Resources Element (Los Angeles County DRP 2015a).

The project proposes construction of 17 structures at various heights along north-facing sloped areas of the site, and the renovation of a single-family residence. The project is on a sloping lot that is largely undeveloped, with exception to the existing residence located in the northeast portion of the site. The project contains ridgelines recognized in the Community Plan and hillsides recognized in the Los Angeles County General Plan 2035 as scenic resources. As proposed, the project's design would be consistent with the County's Hillside Design Guidelines which requires placing structures on gentler slopes, utilizing terraced building pads, and preserving existing ridgelines. A segment of the proposed access roadway and parking would cross an existing ridgeline, and this placement could impact a scenic vista. The project would change the visual character of the site and the immediate surroundings. Therefore, the project would have a **potentially significant impact**, and further analysis on this issue in the forthcoming EIR is required.

POTENTIALLY SIGNIFICANT IMPACT

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

The nearest designated state scenic highway is State Route 2 (the Angeles Crest Scenic Byway), located approximately 25 miles northwest of the site. The project site is also located about 24 miles southeast of the Arroyo Seco Historic Parkway portion of State Route 110 (Caltrans 2018). The project is not visible from either of these highways. Thus, the project is not visible from any state scenic highway. The property is bordered to the east by South Hacienda Boulevard, which is not identified as a scenic roadway in the Los Angeles County General Plan 2035. Although the project may influence views of the hillsides and ridgelines from the streets and highways near the project site, these highways and streets are not designated as having scenic importance.

The project is not within nor visible from any state scenic highway; therefore, the project would have **no impact** to scenic resources within a state scenic highway and further analysis of this issue in the forthcoming EIR is not required.

NO IMPACT

c. Would the project, 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?

Most of the project site is a vacant and rugged, providing scenic views of and from the adjacent Hacienda Heights community. The site is in the Puente Hills which is considered a scenic hillside in the County’s General Plan Conservation and Natural Resources Element. The project is designed to integrate with the natural environment by adhering to the existing topography of the site and includes landscaping to maintain the natural character of the hills around the adjacent neighborhoods. The overall development and proposed buildings would be visually compatible with the associated Hsi Lai Temple to the east. The project would also be subject to the Los Angeles County Hillside Design Guidelines.

Residents of the Hacienda Heights community have codified the importance of existing views of natural surroundings and local hillsides through policy incorporated into the Hacienda Heights Community Plan vision statement. Several trees, including oak trees, are present on the project site, and some would be removed for the construction of proposed buildings and roadway. The removal of the mature trees could alter the visual quality of the hillsides. The project would need to comply with Los Angeles County Oak Tree Ordinance and obtain an Oak Tree Permit. However, the project has the potential to degrade the existing visual quality and character of the hillside and this is a **potentially significant impact** that will be further analyzed in the forthcoming EIR.

POTENTIALLY SIGNIFICANT IMPACT

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

Implementation of the project would introduce new lighting and glare to the area. The proposed Monastery would be comprised of 17 new buildings, which would generate light and glare from building use and vehicle traffic generated by Monastery visitors. The location and general schematics of lighting plans are currently unknown. The project would be subject to lighting standards in the County Code. There is currently no daytime or nighttime glare on the project site. The project may have a **potentially significant impact** since the specifics of lighting are currently unknown, and this topic will be further analyzed in the forthcoming EIR.

POTENTIALLY SIGNIFICANT IMPACT

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2 Agriculture and Forestry Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	□	□	□	■
b. Conflict with existing zoning for agricultural use or a Williamson Act contract?	□	□	□	■
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)); timberland (as defined by Public Resources Code Section 4526); or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	□	□	□	■
d. Result in the loss of forest land or conversion of forest land to non-forest use?	□	□	□	■
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	□	□	□	■

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 non-agricultural use?

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

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

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

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 non-agricultural use?*

The project site is not designated as, is not adjacent to, and is not proximate to lands classified as Prime Farmland, Unique Farmland, or Farmland of Statewide importance, as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency (California Department of Conservation 2017). The northern and eastern portions of the project site is zoned Light Agriculture (A-1-1), which permits agriculture, solar energy facilities, adult residential facilities, and family homes for children. The western portion of the project site is zoned Heavy Agriculture (A-2-1), which permits agriculture, recreation, residential, and some commercial uses. The proposed uses (monastery and dormitory) are allowed uses in both zones with the approval of a conditional use permit (CUP). Pursuant to Figure 9.5, *Agricultural Resource Areas Policy Map*, in the Los Angeles County General Plan 2035, the property is not an Agriculture Resource Area and is not located in an area affect by a Williamson Act contract (Los Angeles County DRP 2015a). Furthermore, the site is not being used, nor has ever been used, for agriculture.

The project site and surrounding area are not zoned as forestland or timberland, and the project site is not located in the vicinity of private timberland or public lands with forests recognized by the California Department of Fish and Wildlife (CDFW 2018). No forestland would be converted or lost as a result of implementing the project. Potential impacts to existing oak trees on the project site are discussed in Section 4, *Biological Resources*. Therefore, the project would have **no impact**, and further analysis of these issues in the forthcoming EIR is not warranted.

NO IMPACT

3 Air Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	☐	■	☐

Rincon Consultants, Inc. completed the Air Quality and Greenhouse Gas Emissions Study, which is included as Appendix A. Results of the report are summarized below.

Air Quality Standards and Attainment

The project site is in the South Coast Air Basin (SCAB), which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). As the local air quality management agency, the SCAQMD is required to monitor air pollutant levels to ensure that state and federal air quality standards are met and, if they are not met, to develop strategies to meet the standards.

Depending on whether the standards are met or exceeded, the SCAB is classified as being in “attainment” or “nonattainment.” Under state law, air districts are required to prepare a plan for air quality improvement for pollutants for which the district is in non-compliance. The SCAQMD is in non-attainment for the federal standards for ozone and $PM_{2.5}$ and the state standards for ozone, suspended particulate matter 10 microns or less (PM_{10}) and suspended particulate matter 2.5 microns or less ($PM_{2.5}$). Areas of the SCAB located in Los Angeles County are also in nonattainment for lead (Rincon Consultants, Inc.2019a). The SCAB is designated unclassifiable or in attainment for all other federal and state standards. Characteristics of ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and PM are described in Table 3.

Table 3 Health Effects Associated with Non-Attainment Criteria Pollutants

Pollutant	Adverse Effects
Ozone	(1) Short-term exposures: (a) pulmonary function decrements and localized lung edema in humans and animals and (b) risk to public health implied by alterations in pulmonary morphology and host defense in animals; (2) long-term exposures: risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (3) vegetation damage; and (4) property damage.
Carbon monoxide (CO)	Reduces oxygen delivery leading to: (1) Aggravation of chest pain (angina pectoris) and other aspects of coronary heart disease; (2) decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (3) impairment of central nervous system functions; and (4) possible increased risk to fetuses.
Nitrogen dioxide (NO_2)	(1) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (2) risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; and (3) contribution to atmospheric discoloration.
Sulfur dioxide (SO_2)	(1) Bronchoconstriction accompanied by symptoms that may include wheezing, shortness of breath, and chest tightness during exercise or physical activity in persons with asthma.
Suspended particulate matter (PM_{10})	(1) Excess deaths from short-term and long-term exposures; (2) excess seasonal declines in pulmonary function, especially in children; (3) asthma exacerbation and possibly induction; (4) adverse birth outcomes including low birth weight; (5) increased infant mortality; (6) increased respiratory symptoms in children such as cough and bronchitis; and (7) increased hospitalization for both cardiovascular and respiratory disease (including asthma).[a]
Suspended particulate matter ($PM_{2.5}$)	(1) Excess deaths from short- and long-term exposures; (2) excess seasonal declines in pulmonary function, especially in children; (3) asthma exacerbation and possibly induction; (4) adverse birth outcomes, including low birth weight; (5) increased infant mortality; (6) increased respiratory symptoms in children, such as cough and bronchitis; and (7) increased hospitalization for both cardiovascular and respiratory disease, including asthma.[a]

[a] More detailed discussions on the health effects associated with exposure to suspended particulate matter can be found in the following documents: Office of Environmental Health Hazard Assessment, Particulate Matter Health Effects and Standard Recommendations, www.oehha.ca.gov/air/toxic_contaminants/PM10notice.html#may, May 9, 2002; and EPA, Air Quality Criteria for Particulate Matter, October 2004.

Source: US EPA 2016

Air Quality Management

Under state law, the SCAQMD is required to prepare a plan for air quality improvement for pollutants for which the District is in non-compliance. The latest Air Quality Management Plan (AQMP) from 2016 was adopted on March 3, 2017. It incorporates new scientific data and notable regulatory actions that have occurred since adoption of the 2012 AQMP, including the approval of the new federal 8-hour ozone standard of 0.070 ppm that was finalized in 2015. The Final 2016 AQMP addresses several state and federal planning requirements and incorporates new scientific information, primarily in the form of updated emissions inventories, ambient measurements, and meteorological air quality models. The Southern California Association of Government's (SCAG) projections for socio-economic data (e.g., population, housing, employment by industry) and transportation activities from the 2016 Regional Transportation Plan/Sustainable Communities Strategy (2016 RTP/SCS) are integrated into the 2016 AQMP. This plan builds upon the approaches taken in the 2012 AQMP for the attainment of federal PM and ozone standards and highlights the significant amount of reductions to be achieved. It emphasizes the need for interagency planning to identify additional strategies to achieve reductions within the timeframes allowed under the federal Clean Air Act, especially in the area of mobile sources. The 2016 AQMP also includes a discussion of emerging issues and opportunities, such as fugitive toxic particulate emissions, zero-emission mobile source control strategies, and the interacting dynamics among climate, energy, and air pollution. The plan also demonstrates strategies for attainment of the new federal 8-hour ozone standard and vehicle miles traveled (VMT) emissions offsets, pursuant to recent U.S. EPA requirements (Appendix A).

Air Emission Thresholds

The SCAQMD recommends quantitative regional significance thresholds for temporary construction activities and long-term project operation in the SCAB, shown in Table 4.

Table 4 SCAQMD Regional Significance Thresholds

Construction Thresholds	Operational Thresholds
75 pounds per day of ROG	55 pounds per day of ROG
100 pounds per day of NO_X	55 pounds per day of NO_X
550 pounds per day of CO	550 pounds per day of CO
150 pounds per day of SO_X	150 pounds per day of SO_X
150 pounds per day of PM_{10}	150 pounds per day of PM_{10}
55 pounds per day of $PM_{2.5}$	55 pounds per day of $PM_{2.5}$
Source: SCAQMD 2015	

Localized Significance Thresholds

In addition to the above regional thresholds, the SCAQMD has developed Localized Significance Thresholds (LSTs) in response to the Governing Board's Environmental Justice Enhancement Initiative (1-4), which was prepared to update the *CEQA Air Quality Handbook* (1993). LSTs were devised in response to concern regarding exposure of individuals to criteria pollutants in local communities and have been developed for NO_X, CO, PM_{10}, and $PM_{2.5}$. LSTs represent the maximum emissions from a project that will not cause or contribute to an air quality exceedance of the most stringent applicable federal or state ambient air quality standard at the nearest sensitive receptor, taking into consideration ambient concentrations in each source receptor area (SRA), distance to the sensitive receptor, and project size. LSTs have been developed for emissions within construction areas up to five acres in size. However, LSTs only apply to emissions in a fixed stationary location and are not applicable to mobile sources, such as cars on a roadway (SCAQMD 2008). As such, LSTs are typically applied only to construction emissions because most operational emissions are associated with project-generated vehicle trips.

LSTs have been developed for emissions within construction areas up to five acres in size. The SCAQMD provides lookup tables for project sites that measure one, two, or five acres. The project site encompasses 28.96 acres, though project construction would disturb a total area of approximately 19 acres. The actual area being disturbed at any one time would be less, as construction would be focused on a specific portion of the project site and the entire area would not be worked on at any one time. Based on prior observations with construction projects, it is assumed that a maximum area of five acres would be disturbed at any given type during project construction. Therefore, this analysis utilizes the five-acre LSTs, which provide a more stringent threshold for construction emissions compared to the analysis of emissions over a larger area.

LSTs are provided for receptors at 82 to 1,640 feet from the project site boundary. Construction activity would occur approximately 25 feet south from the closest sensitive receptor, which is a single-family residential property. According to the SCAQMD's publication, *Final LST Methodology*, projects with boundaries located closer than 82 feet to the nearest receptor should use the LSTs for receptors located at 82 feet. Therefore, the analysis below uses the LST values for 82 feet.

The project is also located in SRA-11 (South San Gabriel Valley). LSTs for construction in SRA-11 on a 5-acre site with a receptor 82 feet away are shown in Table 5.

Table 5 SCAQMD LSTs for Construction (SRA 11)

Pollutant	Allowable Emissions for a 5-acre Site in SRA 11 for a Receptor 82 Feet Away (lbs/day)
Gradual conversion of NO_X to NO_2	183
CO	1,814
PM_{10}	14
$PM_{2.5}$	9
Source: SCAQMD 2009	

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

A project may be inconsistent with the AQMP if it would generate population, housing, or employment growth exceeding forecasts used in the development of the AQMP. The 2016 AQMP, the most recent AQMP adopted by the SCAQMD, incorporates local city general plans and the SCAG's 2016 RTP/SCS socioeconomic forecast projections of regional population, housing, and employment growth.

A project may be inconsistent with the AQMP if it would generate population, housing, or employment growth exceeding forecasts used in the development of the AQMP. SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties, and addresses regional issues relating to transportation, economy, community development, and environment. With regard to air quality planning, SCAG has prepared the RTP/SCS, a long-range transportation plan that uses growth forecasts to project trends for regional population, housing and employment growth out to 2040 to identify regional transportation strategies to address mobility needs. These growth forecasts form the basis for the land use and transportation control portions of the 2016 AQMP.

The updated growth forecasts in SCAG's 2016 RTP/SCS estimate that the population of the unincorporated County will be 1,273,700 in 2040, up 233,000 people from a population of 1,040,700 in 2012. The proposed project would involve development of the Hsi Lai Monastery site, including several dormitories. The project would potentially have up to 32 monks living full time at the Monastery, with 36 beds for short-term visitors, which is conservatively assumed to result in up to 68 new residents. This increase in population would be within the SCAG's projected 2040 population increase of 233,000 from 2012, and the project would not cause the County to exceed official regional population projections.

The employment growth forecasts in SCAG's 2016 RTP/SCS estimate that employment would increase from 222,900 in 2012 to 288,400 in 2040, for an increase of 65,500 jobs. The project would provide six full-time jobs (LLG 2019). This minor increase in employment would be within the SCAG's project 2040 employment increase of 65,500 jobs from 2012, and the project would not cause the County to exceed official regional employment projections.

The household growth forecasts in SCAG's 2016 RTP/SCS estimate that the total number of households would increase from 292,700 in 2012 to 392,400 in 2040, for an increase of 99,700 households. The project would include 8 dormitory buildings, i.e. households. This minor increase in households would be within the SCAG's projected 2040 household increase of 99,700 from 2012, and the project would not cause the County to exceed official regional household projections.

In addition to the project's consistency with applicable population, employment, and household growth projections, the AQMP provides strategies and measures to reach attainment with the thresholds for 8-hour and 1-hour ozone and $PM_{2.5}$. As shown in Table 6 and Table 7, below, the project would not generate criteria pollutant emissions that would exceed SCAQMD thresholds for ozone precursors (ROG and NO_X) and $PM_{2.5}$. Population growth resulting from the project would be within SCAG 2016 RTP/SCS population growth forecasts. Therefore, the project would be consistent with the AQMP, have a **less than significant impact**, and further analysis in the forthcoming EIR is not warranted.

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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?

In accordance with CEQA Guidelines Section 15064(h)(3), the SCAQMD's approach for assessing cumulative impacts is based on the AQMP forecasts of attainment of ambient air quality standards in accordance with the requirements of the federal and state Clean Air Acts. If the mass regional emissions calculated for a project exceed the applicable SCAQMD daily significance thresholds that are designed to assist the region in attaining the applicable state and national ambient air quality standards, that project can be considered cumulatively considerable.

Construction

Table 6 summarizes the estimated maximum daily emissions (lbs) of pollutants associated with construction of the project. As shown below, ROG, $NO_{X,}$ CO, SO_2, PM_{10}, and $PM_{2.5}$ emissions would not exceed SCAQMD regional thresholds or LSTs. Because the project would not exceed SCAQMD's regional construction thresholds or LSTs, project construction would not result in a cumulatively considerable net increase of a criteria pollutant, and project construction activities would have a **less than significant impact**.

Table 6 Project Construction Emissions

	Maximum Emissions (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Construction Year 2022	5.0	70.7	38.0	0.2	10.0	6.0
Construction Year 2023	62.4	23.7	28.9	0.1	5.0	1.8
Maximum Emissions	**62.4**	**70.7**	**38.0**	**0.2**	**10.0**	**6.0**
SCAQMD Regional Thresholds	75	100	550	150	150	55
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**
Maximum On-site Emissions	62.0	38.8	29.0	<0.1	9.7	6.0
SCAQMD Localized Significance Thresholds (LSTs)	N/A	183	1,814	N/A	14	9
Threshold Exceeded?	**N/A**	**No**	**No**	**N/A**	**No**	**No**

Notes: Emissions modeling was completed using CalEEMod. See Appendix A for modeling results. Some numbers may not add up due to rounding. Emission data is pulled from "mitigated" results, which account for compliance with regulations and project design features. Maximum on-site emissions are the highest emissions that would occur on the project site from on-site sources such as heavy construction equipment and architectural coatings and excludes off-site emissions from sources such as construction worker vehicle trips and haul truck trips.

Source: Rincon Consultants, Inc.2019a

Operational

Table 7 summarizes the project's operational emissions by emission source (area, energy, or mobile). As shown below, the emissions generated by operation of the project would not exceed SCAQMD regional thresholds for criteria pollutants. Therefore, the project would not contribute substantially to an existing or projected air quality violation and would have a **less than significant impact**. In addition, because criteria pollutant emissions and regional thresholds are cumulative in nature, the project would not result in a cumulatively considerable net increase of criteria pollutants.

Table 7 Project Operational Emissions

Emission Source	Maximum Daily Emissions (lbs/day)					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Area	3.2	0.1	0.7	<0.1	<0.1	<0.1
Energy	0.1	0.5	0.4	<0.1	<0.1	<0.1
Mobile	0.9	4.1	11.1	<0.1	3.5	1.0
Project Emissions	**4.2**	**4.7**	**12.2**	**<0.1**	**3.5**	**1.0**
SCAQMD Regional Thresholds	55	55	550	150	150	55
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Notes: Emissions modeling was completed using CalEEMod. See Appendix A for modeling results. Some numbers may not add up due to rounding. Emission data is pulled from "mitigated" results that include compliance with regulations and project design features that will be included in the project.

Source: Rincon Consultants, Inc. 2019a

LESS THAN SIGNIFICANT IMPACT

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

Toxic Air Contaminants

Construction activities associated with the proposed project would be sporadic, transitory, and short term in nature. The greatest potential for TAC emissions during construction would be related to diesel particulate matter (DPM) associated with heavy equipment operations during earth-moving activities, which are estimated to last approximately four months. The assessment of cancer risk is typically based on a 30-year exposure duration. Because exposure to diesel exhaust would be well below 30 years, construction of the proposed project is not anticipated to result in an elevated cancer risk to exposed persons due to the short-term nature of construction. As such, project-related TAC emission impacts during construction would be **less than significant,** and further analysis in the forthcoming EIR is not warranted.

As a monastery that holds special events, the project would not be a type of land use that would generate operational TACs (which typically include commercial or industrial uses such as dry cleaners, factories, and refineries), and **no impacts would occur,** and further analysis in the forthcoming EIR is not warranted.

CO Hot Spots

A CO hotspot is a localized concentration of CO that is above a CO ambient air quality standard. Localized CO hotspots can occur at intersections with heavy peak hour traffic. Specifically, hotspots can be created at intersections where traffic levels are sufficiently high such that the local CO concentration exceeds the federal one-hour standard of 35.0 parts per million (ppm) or the federal and state eight-hour standard of 9.0 ppm (CARB 2016).

A detailed CO analysis was conducted during the preparation of SCAQMD's 2003 AQMP. The locations selected for microscale modeling in the 2003 AQMP included high average daily traffic (ADT) intersections in the SCAB, those which would be expected to experience the highest CO concentrations. The highest CO concentration observed was at the intersection of Wilshire

Boulevard and Veteran Avenue on the west side of Los Angeles near the I-405 Freeway. The concentration of CO at this intersection was 4.6 ppm, which is well below the state and federal standards. The Wilshire Boulevard/Veteran Avenue intersection has an ADT of approximately 100,000 vehicles per day.

The total ADT for the nearest major intersection to the proposed project, Colima Road/South Hacienda Boulevard, was measured at 26,168 vehicles in 2010 (Los Angeles County Department of Public Works [DPW] 2019a), which is less than the 100,000 vehicle count on the Wilshire Boulevard/Veteran Avenue intersection that was already well below the standards. In addition, the proposed project would only add a maximum of approximately 662 weekday trips under worst case scenario conditions (LLG 2019). Furthermore, due to stricter vehicle emissions standards in newer cars and new technology that increases fuel economy, CO emission factors under future land use conditions would be lower than those under existing conditions. Thus, even though there would be more vehicle trips under the proposed project than under existing conditions, project-generated local mobile-source CO emissions would not result in or substantially contribute to concentrations that exceed the one-hour or eight-hour CO standard. Therefore, impacts would be **less than significant**, and further analysis in the forthcoming EIR is not warranted.

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

For construction activities, odors would be short-term in nature and are subject to SCAQMD Rule 402 Nuisance and may be reported to the AQMD. Construction activities would be temporary and transitory and associated odors would cease upon construction completion. Accordingly, the project would not create objectionable odors affecting a substantial number of people during construction, and project construction should have a **less than significant impact** in the short-term.

Common sources of operational odor complaints include sewage treatment plants, landfills, recycling facilities, and agricultural uses. The proposed Monastery would not include any of these uses that are known to generate odors. In addition, solid waste generated by the proposed on-site uses would be stored in required waste/recycling receptacles and collected by a contracted waste hauler, ensuring that odors resulting from on-site waste would be managed and collected in a manner to prevent the proliferation of odors. Therefore, the project would have a **less than significant impact** on operational odors, and further analysis in the forthcoming EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

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 or U.S. Fish and Wildlife Service?	■	□	□	□
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	■	□	□	□
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	■	□	□	□
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	■	□	□	□
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	■	□	□	□
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	□	□	■	□

Rincon Consultants, Inc. completed a Biological Constraints Analysis (BCA) and an Oak Tree Survey Report for the project site, which is summarized here and included as Appendices B-1 and B-2.

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

Special-status species are those plants and animals listed, proposed for listing, or candidates for listing as Threatened or Endangered by the USFWS under the Federal Endangered Species Act (ESA); those considered "Species of Concern" by the USFWS; those listed or candidates for listing as Rare, Threatened, or Endangered by the CDFW under the California Endangered Species Act (CESA) and Native Plant Protection Act; animals designated as "Fully Protected" by the California Fish and Game Code (CFGC); animals listed as "Species of Special Concern" (SSC) by the CDFW; CDFW Special Plants, specifically those with California Rare Plant Ranks (CRPR) of 1B, 2, 3, and 4 in the CNPS's Inventory of Rare and Endangered Vascular Plants of California; and birds identified as sensitive by the Los Angeles County Audubon Society.

Two special-status plant species were observed on the project site during the 2018 biological surveys: mariposa lily (*Calochortus* sp.) of undetermined species, CRPR 1B.2 or 4.2 depending on species; and island oak (*Quercus tomentella*), CRPR 4.2. One additional special-status plant species, the Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*), CRPR 4.3, has a moderate potential to occur on the project site given the conditions and vegetation communities present (Rincon Consultants, Inc. 2019b).

Five special-status wildlife species were observed on the project site during the 2018 biological surveys: Cooper's hawk (*Accipiter cooperii*), coastal cactus wren (*Campylorhynchus burnneicapillus*), turkey vulture (*Cathartes aura*), California towhee (*Melozone crissalis*), and Hutton's vireo (*Vireo huttoni*). Though the project site is in a larger overall area designated by the USFWS as critical habitat for the Coastal California gnatcatcher, none were observed on the project site during 2018 breeding season protocol surveys (Rincon Consultants, Inc. 2019b).

Four additional special-status wildlife species have a moderate or high potential to occur on the project site given the vegetation communities and habitats present: coastal whiptail (*Aspidoscelis tigris stejnegeri*), Species of Special Concern (SSC); coast patch-nosed snake (*Salvadora hexalepis virgultea*), SSC; merlin (*Falco columbarius*), CDFW Watch List; and American badger (*Taxidea taxus*), SSC (Rincon Consultants, Inc. 2019b).

Due to the presence of sensitive bird species and the potential for sensitive plant and wildlife species to occur on the project site, the proposed development could result in a **potentially significant impact** through habitat removal or damage. This issue requires further analysis in the forthcoming EIR.

POTENTIALLY SIGNIFICANT IMPACT

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

Nine vegetation communities and one land cover type were identified on-site: Upland Mustards, Annual Brome Grasslands, California Sagebrush Scrub, Coast Live Oak Woodland, Ornamental Tree Stand, Blue Elderberry Stands, Laurel Sumac Scrub, Purple Needle Grass Grassland, Mulefat Thickets, and Developed/Road. Non-native assemblages of upland mustard and annual brome grassland covering over half the site. The CDFW *California Sensitive Natural Communities* list identifies sensitive natural communities throughout California, based in part on global and state rarity ranks. Natural communities having a rank of 1-3 are generally considered sensitive, though some communities with other ranks may also be considered sensitive. Two vegetation communities on the project site are considered sensitive by the CDFW: Blue Elderberry Stands and Purple Needle Grass Grassland (Rincon Consultants, Inc. 2019b). Project construction may impact these sensitive communities through removal or damage; therefore, impacts could be **potentially significant**, and this issue requires further analysis in the forthcoming EIR.

POTENTIALLY SIGNIFICANT IMPACT

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?*

A Jurisdictional Delineation Report was completed by Rincon Consultants, Inc. in 2019 for the project site, and is included as Appendix C. A total of five jurisdictional features were identified during the initial survey, all of which were linear ephemeral drainages that had no flowing or standing water at time of the surveys (Rincon Consultants, Inc. 2019d). Three drainages on the project site were observed to have a bed and bank where water flows at some point during the year and/or have riparian vegetation, and are therefore under the jurisdiction of the California Department of Fish and Wildlife (CDFW) and considered waters of the state under the jurisdiction of the Los Angeles Regional Water Quality Control Board (RWQCB). Therefore, the project would result in a **potentially significant impact** to jurisdictional drainages, and further analysis in the forthcoming EIR is required.

POTENTIALLY SIGNIFICANT IMPACT

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?*

The project site is located within 1,000 feet of a Natural Landscape Block, is within the Puente-Chino Hills Regional Habitat Linkage identified by in the Los Angeles County General Plan (Los Angeles County DRP 2015a), and is adjacent to land managed by the Puente Hills Habitat Authority for the purpose of maintaining wildlife movement. Per the County's General Plan 2035, the "Puente and Chino Hills are a natural, physical link between the Santa Ana Mountains and the San Gabriel River. The San Gabriel River flows from and links to the San Gabriel Mountains. By virtue of these linkages and a complex of interconnected habitat units, the Puente and Chino Hills function as both an important wildlife linkage and resident habitat area for regional wildlife populations."

Situated at the urban edge of the Puente Hills, the project site's vegetation communities and habitats contribute to supporting wildlife movement in the Puente Hills (and beyond to the Chino

Hills and Santa Ana Mountains) as well as provide a buffer from urban land uses for open spaces to the south of the project site. The most important habitat contributing to wildlife movement on the project site includes the coast live oak woodland.

Connectivity features such as the oak woodland and the Schabarum Trail that pass through the project site provide a linkage from east to west across South Hacienda Boulevard and vegetative cover for those wildlife species that move through it, particularly for mammals. The County's General Plan 2035 notes that use of the undercrossings and surface crossing by wildlife in the Puente Hills SEA (which is located to the south of the project site) has been documented with movement largely east-west, including bobcat, coyote, gray fox (*Urocyon cinereoargenteus*), and mule deer. Therefore, the project would have a **potentially significant impact** on wildlife movement, and further analysis in the forthcoming EIR is warranted.

POTENTIALLY SIGNIFICANT IMPACT

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

Rincon Consultants, Inc. completed an oak tree survey for the project site in 2018 (Appendix B-2). A total of 60 individually protected oak trees have Protected Zones[2] occurring within the project site. Fifty-four coast live oaks (*Quercus agrifolia*), five cork oaks (*Quercus suber*), and one Island oak (*Quercus tomentella*) were observed on the eastern half of the project site during surveys in June 2018. Two coast live oak trees are considered Heritage Trees.

Approximately 8.77 acres of oak woodlands were identified within a 200-foot survey area of the project site. Most of the woodlands (8.63 acres) are intact and defined as being in a wild state, and a total of 149 native oak trees are protected by the County's Oak Woodlands Conservation Management Plan. Two trees are located across South Hacienda Boulevard on the northeast corner of the 200-foot buffer survey area in the adjacent Hsi Lai Buddhist Temple property. These trees comprise a severely degraded woodland (0.14 acre), which has been drastically altered and fragmented by the establishment of paved roadways, cemented sidewalks, and landscaping (Rincon Consultants, Inc. 2019c).

Implementation of the project would be subject to all applicable federal, state, and local policies and regulations related to the protection of biological resources, including the County's Oak Tree Ordinance (Code Section 22.56.2050). Any removal or encroachment of these oak trees on the project site would result in a **potentially significant impact**. This issue requires further analysis in the forthcoming EIR.

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[2] Defined by Section 22.56.2050 *et seq.* as five feet from the dripline, or 15 feet from the trunk, whichever is greater (County of Los Angeles 1988).

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

The project site does not occur within the limits of any adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan. The project would be consistent with the provisions established in the County Code Section 22.56.217 *Hillside Management Areas*, the Hillside Design Guidelines (Appendix to Section 22.56.217), and applicable goals and policies of the County General Plan 2035 Conservation and Natural Resources Element. Therefore, the project would result in a **less than significant impact**, and further discussion of this issue in the forthcoming EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

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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 §15064.5?	□	□	□	■
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	■	□	□	□
c. Disturb any human remains, including those interred outside of formal cemeteries?	■	□	□	□

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

Rincon Consultants, Inc. completed a Cultural Resources Study in September 2019, which is included as Appendix D. The project site is undeveloped and does not contain any historic resources that are listed as historic resources and points of interest designated by the State of California. There are no known historic resources on the property that meet CEQA historic resources eligibility criteria. The California Historical Resources Information System (CHRIS) search identified one previously recorded resource (P-19-190505) located immediately south of the project site (Rincon Consultants, Inc. 2019e). As the resource was previously determined to be ineligible for listing on the National Register of Historic Places (NRHP) and California Register of Historical Resources (CRHR), it is not considered a historical resource under CEQA. Results from the Sacred Lands File search submitted to the Native American Heritage Commission (NAHC) did not indicate any known resources in the vicinity of the project site. A review of historical aerial photographs revealed that the project site is largely undeveloped except for the existing, primarily unpaved access way and several graded access roads (NETRonline 2018). No prehistoric or historical period cultural resources were observed during the pedestrian survey of the project site. Therefore, the project would have **no impact** on historical resources as defined in *CEQA Guidelines* Section 15064.5, and further analysis of this issue in the forthcoming EIR is not warranted.

NO IMPACT

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

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

According to the Cultural Resources Study, there are no known archaeological resources present on the project site (Rincon Consultants, Inc. 2019e). However, it is possible that additional subsurface deposits are present that could be encountered during project-related ground-disturbing activities. The project site is not known or suspected to have been used as a cemetery or to contain human remains.

In the unlikely event that archaeological resources or human remains are unearthed during excavation and grading, applicable regulatory requirements pertaining to the handling and treatment of such resources would be followed. If archaeological resources are identified, as defined by Section 2103.2 of the Public Resources Code, the site would be required to be treated in accordance with the provisions of Section 21083.2 of the Public Resources Code as appropriate. If human remains are unearthed, State Health and Safety Code Section 7050.5 requires that no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to Public Resources Code Section 5097.98. As the project may encounter unknown archaeological resources or human remains, the project would have a **potentially significant impact**, and will be further analyzed in the forthcoming EIR.

POTENTIALLY SIGNIFICANT IMPACT

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?	☐	☐	☐	■

Electricity and Natural Gas

In 2018, California used 285,488 gigawatt-hours (GWh) of electricity, of which 32.35 percent were from renewable resources (CEC 2018a). California also consumed approximately 12,666.4 million U.S. therms (MMthm) of natural gas in 2018 (CEC 2018b). The project site would be provided electricity by Southern California Edison (SCE) and natural gas by Southern California Gas Company (SCG). Table 8 and Table 9 show the electricity and natural gas consumption by sector and total for SCE and SCG. In 2018, SCE provided approximately 29.8 percent of the total electricity used in California and SCG provided approximately 40.7 percent of the total natural gas usage in California.

Table 8 Electricity Consumption in the SCE Service Area in 2018

Agriculture and Water Pump	Commercial Building	Commercial Other	Industry	Mining and Construction	Residential	Streetlight	Total Usage
3,192.2	31,573.8	4,367.4	13,391.6	2,390.0	29,865.0	496.0	85,276.0

Notes: All usage expressed in GWh

Source: CEC 2018c

Table 9 Natural Gas Consumption in SCG Service Area in 2018

Agriculture and Water Pump	Commercial Building	Commercial Other	Industry	Mining and Construction	Residential	Total Usage
77.61	912.98	74.52	1,714.36	229.22	2,147.39	5,156.08

Notes: All usage expressed in MMThm

Source: CEC 2018d

Petroleum

In 2016, approximately 40 percent of the state's energy consumption was used for transportation activities (EIA 2018). Californians presently consume over 19 billion gallons of motor vehicle fuels per year (CEC 2018e). Though California's population and economy are expected to grow, gasoline demand is projected to decline from roughly 15.8 billion gallons in 2017 to between 12.3 billion and 12.7 billion gallons in 2030, a 20 percent to 22 percent reduction. This decline comes in response to both increasing vehicle electrification and higher fuel economy for new gasoline vehicles (CEC 2018e).

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

Construction Energy Demand

During project construction, energy would be consumed in the form of petroleum-based fuels used to power off-road construction vehicles and equipment on the project site, construction worker travel to and from the project site, and vehicles used to deliver materials to the site. The project would require site preparation and grading, including hauling material off-site; pavement and asphalt installation; building construction; architectural coating; and landscaping and hardscaping.

The total consumption of gasoline and diesel fuel during project construction was estimated using the assumptions and factors from CalEEMod used to estimate construction air emissions in the Air Quality and Greenhouse Gas Emission Report (Appendix A). Table 10 presents the estimated construction phase energy consumption, indicating construction equipment, vendor trips, and worker trips would consume approximately 87,560 gallons of diesel fuel over the project construction period. Construction equipment would consume an estimated 67,868 gallons of fuel; vendor and hauling trips would consume approximately 19,432 gallons of fuel; and worker trips would consume approximately 261 gallons of fuel over the combined phases of project construction.

The construction energy estimates represent a conservative estimate as the construction equipment used in each phase of construction was assumed to be operating every day of construction. Construction equipment would be maintained to all applicable standards, and construction activity and associated fuel consumption and energy use would be temporary and typical for construction sites. It is also reasonable to assume contractors would avoid wasteful, inefficient, and unnecessary fuel consumption during construction to reduce construction costs. Furthermore, County Green Building Code Title 31 Section 5.408 requires newly-constructed projects to recycle and/or salvage for reuse a minimum of 65 percent of the non-hazardous construction and demolition debris in accordance with the code. Therefore, the project would not involve the inefficient, wasteful, and unnecessary use of energy during construction, and the construction-phase impact related to energy consumption would be **less than significant**.

Table 10 Estimated Fuel Consumption during Construction

Fuel Type	Gallons of Fuel	MMBtu[4]
Diesel Fuel (Construction Equipment)[1]	67,868	7,541
Diesel Fuel (Hauling & Vendor Trips)[2]	19,432	2,235
Other Petroleum Fuel (Worker Trips)[3]	261	30
Total	**87,560**	**9,806**

[1] Fuel demand rate for construction equipment is derived from the total hours of operation, the equipment's horse power, the equipment's load factor, and the equipment's fuel usage per horse power per hour of operation, which are all taken from CalEEMod outputs (see Appendix A), and from compression-ignition engine brake-specific fuel consumptions factors for engines between 0 to 100 horsepower and greater than 100 horsepower (U.S. EPA 2018). Fuel consumed for all construction equipment is assumed to be diesel fuel.

[2] Fuel demand rate for hauling and vendor trips (cut material imports) is derived from hauling and vendor trip number, hauling and vendor trip length, and hauling and vendor vehicle class from "Trips and VMT" Table contained in Section 3.0, *Construction Detail*, of the CalEEMod results (see Appendix A). The fuel economy for hauling and vendor trip vehicles is derived from the United States Department of Transportation (DOT 2018). Fuel consumed for all hauling trucks is assumed to be diesel fuel.

[3] The fuel economy for worker trip vehicles is derived from the U.S. Department of Transportation National Transportation Statistics (24 mpg) (DOT 2018). Fuel consumed for all worker trips is assumed to be gasoline fuel.

[4] CaRFG CA-GREET 2.0 fuel specification of 109,786 Btu/gallon used to identify conversion rate for fuel energy consumption for worker trips specified above (California Air Resources Board [CARB] 2015). Low-sulfur Diesel CA-GREET 2.0 fuel specification of 127,464 Btu/gallon used to identify conversion rate for fuel energy consumption for construction equipment specified above (CARB 2015). Totals may not add up due to rounding.

Operational Energy Demand

The operation of the project would increase area energy demand from greater electricity, natural gas, and gasoline consumption at a currently undeveloped site. Natural gas and electricity would be used for heating and cooling systems, lighting, appliances, water use, and the overall operation of the meditation halls, classrooms, dormitories, villas, and multifunctional buildings. Gasoline consumption would be attributed to the trips generated from people employed by the Monastery during normal operations, and visitors accessing the site for special events. The estimated number of average daily trips associated with the project is used to determine the energy consumption associated with fuel use from the operation of the project. Most of the fuel consumption would be from motor vehicles traveling to and from the project site. According to the CalEEMod calculations, the project would result in 1,591,381 annual VMT (Appendix A). This uses the most conservative estimate of daily trip generation determined in the preliminary project trip generation calculated by Linscott, Law, and Greenspan Engineers (LLG) (Appendix H), where special event conditions are assumed for every day of operation. Under this scenario, when special events are combined with regular operation, the project would generate 706 average daily trips under special event conditions (Appendix H). Table 11 shows the estimated total annual fuel consumption of the project using the estimated trip generation (Appendix H) and VMT with the assumed vehicle fleet mix (Appendix A). One gallon of gasoline is equivalent to approximately 109,786 Btu (CARB 2015), while one gallon of diesel is equivalent to approximately 127,460 Btu (Schremp 2017).

Table 11 Estimated Project Annual Transportation Energy Consumption

Vehicle Type[1]	Percent of Vehicle Trips[2]	Annual Vehicle Miles Traveled[3]	Average Fuel Economy (miles/gallon)[4]	Total Annual Fuel Consumption (gallons)	Total Fuel Consumption (MBtu)[6]
Passenger Cars	54.6	868,894	24.0	36,204	3,975
Light/Medium Trucks	36.9	587,220	17.4	33,748	3,705
Heavy Trucks/Other	8.0	127,310	7.4	17,204	1,889
Motorcycles	0.5	7,957	43.9[5]	181	20
Total	**100.0**	**1,591,381**	**–**	**87,338**	**9,588**

[1] Vehicle classes provided in CalEEMod do not correspond exactly to vehicle classes in DOT fuel consumption data, except for motorcycles. Therefore, it was assumed that passenger cars correspond to the light-duty, short-base vehicle class, light/medium trucks correspond to the light-duty long-base vehicle class, and heavy trucks/other correspond to the single unit, 2-axle 6-tire or more class.

[2] Percent of vehicle trips from Table 4.4 "Fleet Mix" in Air Quality and Greenhouse gas Emissions Study, CalEEMod output (see Appendix A).

[3] Mitigated annual VMT found in Table 4.2 "Trip Summary Information" in Air Quality and Greenhouse Gas Emissions Study CalEEMod output (see Appendix A).

[4] Average Fuel Economy: U.S. Department of Energy, 2018.

[5] U.S. Department of Transportation 2013

[6] CaRFG fuel specification of 109,786 Btu/gallon used to identify conversion rate for fuel energy consumption for vehicle classes specified above (CARB 2015).

Notes: Totals may not add up due to rounding.

As shown, the project would consume approximately 87,338 gallons of fuel, or 9,588 MBtu, each year for transportation uses from the operation under the most conservative estimate. The project does not intend to host special events every day of the year; therefore, it is likely that actual fuel consumption will be lower than estimates in Table 11.

Operation of the project would consume approximately 1.8 GWh of electricity per year (electricity use provided in the CalEEMod output of Appendix A). The project's electricity demand would be served by SCE, which provided 84,291 GWh of electricity in 2017; therefore, SCE would have sufficient supplies for the project. Estimated natural gas consumption for the project would be 0.018 MMthm per year (electricity use provided in the CalEEMod output of Appendix A). The project's natural gas demand would be serviced by SCG, which provided 5,142 MMthm per year in 2017; therefore, SCG would have sufficient supplies for the project.

The project would comply with all applicable standards set in Title 31 of the County Code, as well as CBC Title 24, which would minimize the wasteful, inefficient, or unnecessary consumption of energy resources during operation. The purpose of Title 31 is to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact, or positive environmental impact, and encouraging sustainable construction practices in the following categories: planning and design; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and environmental air quality. Mandatory measures under Title 31 include implementing Low Impact Development (LID) standards[3], installing elective vehicle parking spaces and hook ups, and using roofing materials that

[3] "Low Impact Development (LID)" means technologies and practices that are part of a sustainable stormwater management strategy that controls stormwater and urban runoff on site.

comply with the solar reflectance and thermal emittance requirements of Title 31 Section 5.106.11. California's CALGreen standards (California Code of Regulations, Title 24, Part 11) require implementation of energy efficient light fixtures and building materials into the design of new construction projects.

Furthermore, the 2019 Building Energy Efficiency Standards (CBC Title 24, Part 6) require newly constructed buildings to meet energy performance standards set by the Energy Commission. As the name implies, these standards are specifically crafted for new buildings to result in energy efficient performance so that the buildings do not result in wasteful, inefficient, or unnecessary consumption of energy. The standards are updated every three years and each iteration is more energy efficient than the previous standards. For example, according to the CEC, residences built with the 2019 standards will use about seven percent less energy due to energy efficiency measures versus those built under the 2016 standards, or 53 percent less energy with rooftop solar, and nonresidential buildings will use about 30 percent less energy due mainly to lighting upgrades (CEC 2018a). The project would further reduce its use of nonrenewable energy resources as the electricity generated by renewable resources provided by SCE continues to increase to comply with state requirements through Senate Bill 100.

In conclusion, the construction of the project would be temporary and typical of similar projects, and would not result in the wasteful, inefficient, or unnecessary consumption of energy. The operation of the project would increase the consumption of fuel, natural gas, and electricity from existing conditions of an undeveloped site; however, the increase would be in conformance with the latest version of California's Green Building Standards Code and the Building Energy Efficiency Standards. In addition, SCE and SCG have sufficient supplies to serve the project. Therefore, the project would have a **less than significant impact**, and further analysis in the forthcoming EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

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

Los Angeles County implemented a Community Climate Action Plan (CCAP) in August 2015. The CCAP, which is a component of the County's General Plan 2035, sets a target to reduce GHG emissions from community activities in the unincorporated areas of Los Angeles County by at least 11 percent below 2010 levels by 2020 (Los Angeles County DRP 2015b). The CCAP describes the County's plan for achieving this goal. The project would not conflict with this goal and would be consistent with CCAP measure LUT-9, Idling Reduction Goal. This goal encourages idling limits of 3 minutes for heavy-duty construction equipment, as feasible within manufacturer's specifications. As mentioned previously, construction costs can be reduced by preventing wasteful fuel use, which is promoted through LUT-9.

The project would also comply with all applicable goals and policies included in the Hacienda Heights Community Plan (Los Angeles County DRP 2011). These goals are consistent with those outlined in the County's General Plan 2035, and the policies indicate measures which will be enacted to reach the goals. Measures that are relevant to the current project include:

- **Policy C 4.1:** Encourage energy efficiency through the use of alternative energy sources, drought-tolerant landscaping, low-impact development and sustainable construction materials.

- **Policy C 4.2:** Encourage sustainable, environmentally friendly construction and business operating practices.
- **Policy C 5.2:** Implement the County's Green Building Ordinances.

Policies C 4.1 and C 5.2 are required as part of the County's Green Building Program (County Code Title 31), which implements the Green Building Standards Code, encouraging sustainable planning and design, material conservation and drought tolerant landscaping. Policy C 4.2 is enforced as part of CBC Title 24, which requires sustainable building practices through energy efficiency standards (as further described above). The project would comply with the applicable measures related to energy conservation and would not conflict or inhibit implementation of any energy conservation policies or measures in the Hacienda Heights Community Plan. Therefore, the project would have **no impact**, and further analysis in the forthcoming EIR is not warranted.

NO IMPACT

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:				
1. 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?	■	□	□	□
2. Strong seismic ground shaking?	■	□	□	□
3. Seismic-related ground failure, including liquefaction?	■	□	□	□
4. 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 offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?	■	□	□	□
d. Be located on expansive soil, as defined in Table 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 wastewater disposal systems where sewers are not available for the disposal of wastewater?	□	□	□	■

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	■	☐	☐	☐

a.1. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?

a.2. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?

a.3. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?

a.4. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

The entire southern California region, including the project area, is considered seismically active. The project site is located approximately 740 feet east of the Whittier Fault Zone, according to the California Earthquake Hazards Zone map (California Department of Conservation 2018) and Figure 12.1, *Seismic and Geotechnical Hazard Zones,* of the Los Angeles County General Plan 2035 (Los Angeles County DRP 2015a). As such, the project site is subject to seismic ground shaking, and is also located in liquefaction and landslide zones (California Department of Conservation 2018).

The project entails construction of 17 new stand-alone buildings, which would all be required to comply with Los Angeles County and the State of California Title 24 Building Code. Compliance with Title 24 regulations would result in structures that are better able to resist structural collapse and reduce the severity of loss, injury, or death during seismic events.

The topography of the project site consists of three main hills. Elevation ranges from the lowest of approximately 660 feet above mean sea level (MSL) along the eastern boundary of the site at South Hacienda Boulevard, to approximately 865 feet above MSL at the highest point in the south-central portion of the site. The proposed development would be situated across various hillsides with slopes. The project is in an earthquake-induced landslide zone (California Department of Conservation 2018; Los Angeles County DRP 2015a). Therefore, these hazards may have a **potentially significant impact** due to the project site location and existing conditions and will be further addressed in the forthcoming EIR.

POTENTIALLY SIGNIFICANT IMPACT

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

Soil erosion is the process by which soil particles are removed from a land surface by wind, water, or gravity. Most natural erosion occurs at slow rates; however, the rate of erosion increases when land is cleared or altered and left in a disturbed condition. Construction activities may result in temporary erosion of topsoil during grading activities. However, upon project completion, the site would not contain any loose or exposed topsoil, and conditions that would cause long-term erosion would not be present. All project construction activities would be compliant with the County Code Title 26, Appendix J, *Grading*, which establishes provisions for excavation, grading, and earthwork construction; permitting procedures; and plan approval, grading inspection protocols and procedures. Furthermore, County Code Title 26 Section J110 also contains provisions for construction-related erosion control, which includes preparation of cut-and-fill slopes, and the implementation of erosion control measures such as check dams, cribbing, riprap, or other devices and methods.

The project site is characterized by three main hills and varying topography. The project entails construction of 17 new buildings, realignment of the site access driveway, and a seven-level subterranean parking garage. The project also includes a designated public nature trail to be established along the southern portion of the site, which would connect to the Arroyo San Miguel trail network off-site to the southwest. Extensive grading and excavation would be required to implement the project. Adherence to the County Code Title 26 Appendix J and all applicable rules would be necessary to reduce and/or prevent erosion during construction activities. A geotechnical report for the project site is in progress, and findings and recommendations will be incorporated into the EIR. Therefore, the project may have a **potentially significant impact** on soil erosion or loss of topsoil and will be further addressed in the forthcoming EIR.

POTENTIALLY SIGNIFICANT IMPACT

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 offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?

As described above in response 6a, the project site is located approximately 740 feet east of the Alquist-Priolo Fault Zone, and is subject to seismic groundshaking, liquefaction, and landslides. The project site has rugged topography and high landslide potential. Due to the potential fault rupture, liquefaction, and landslide risks on the project site, the project could be located on unstable soil or the project site could become unstable. Therefore, these hazards may have a **potentially significant impact,** and will be addressed in the forthcoming EIR.

POTENTIALLY SIGNIFICANT IMPACT

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

The project area contains two non-hydric native soil types: Zaca-Apollo warm complex, 20 to 55 percent slopes (1141), which is a well-drained soil complex composed of clay, sand, and gypsum that is found on hillslopes; and Soper-Pachic Haploxerolls-Boades complex, 25 to 75 percent slopes (1143), which is a well-drained soil complex composed of clay sand and gypsum that is found on hillslopes (Rincon Consultants, Inc. 2019d). A geotechnical report for the project site is in progress, and findings and recommendations will be incorporated into the EIR. Therefore, the project could be located on expansive soil, and the project may have a **potentially significant impact**, and will be further addressed in the forthcoming EIR.

POTENTIALLY SIGNIFICANT IMPACT

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

The project would be served by the public sewer system and would not entail the construction or use of septic tanks or alternative waste water disposal systems. Therefore, the project would have **no impact** related to soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems and further analysis in the forthcoming EIR is not warranted.

NO IMPACT

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

Rincon Consultants, Inc. completed a Paleontological Resources Technical Report for the project site, included as Appendix E. Geologic maps indicate that the project site is underlain by the Miocene Puente Formation and Quaternary alluvium, which have high paleontological sensitivity levels and a high potential to contain buried intact paleontological resources. A records search for paleontological locality data in the project site and the vicinity was obtained from the Natural History Museum of Los Angeles County and online records were reviewed at the University of California's Museum of Paleontology. According to the record searches, no vertebrate fossil localities have been previously recorded directly in the project boundary; however, multiple vertebrate fossil localities have been previously recorded nearby in the Puente Formation and deposits of older Quaternary alluvium. These localities yielded scientifically significant fossilized specimens of large terrestrial mammals, rodents, and reptiles.

The project site is determined to have a high potential for paleontological resources and the likelihood of impacting scientifically significant vertebrate fossils as a result of project construction would be high (Rincon Consultants, Inc. 2019f). Ground disturbing activities in previously undisturbed portions of the project site could potentially result in significant impacts to paleontological resources. Impacts would be significant if construction activities result in the destruction, damage, or loss of scientifically important paleontological resources and associated stratigraphic and paleontological data. Activities may include grading, excavation, drilling, or any other activity that disturbs the surface or subsurface geologic formations with a high paleontological sensitivity. Therefore, the project would have a **potentially significant impact**, and further analysis in the forthcoming EIR is required.

POTENTIALLY SIGNIFICANT IMPACT

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?	☐	☐	■	☐

Rincon Consultants, Inc. completed the Air Quality and Greenhouse Gas Emissions Study, which is included as Appendix A. Results of the report are summarized below.

Climate change is the observed increase in the average temperature of the Earth's atmosphere and oceans along with other substantial changes in climate (such as wind patterns, precipitation, and storms) over an extended period. Climate change is the result of numerous, cumulative sources of greenhouse gases (GHGs). GHGs contribute to the "greenhouse effect," which is a natural occurrence that helps regulate the temperature of the planet. Most of the radiation from the Sun hits the Earth's surface and warms it. The surface in turn radiates heat back towards the atmosphere, known as infrared radiation. Gases and clouds in the atmosphere trap and prevent some of this heat from escaping back into space and re-radiate it in all directions. This process is essential to supporting life on Earth because it warms the planet by approximately 60° Fahrenheit. Emissions from human activities since the beginning of the industrial revolution (approximately 250 years ago) are adding to the natural greenhouse effect by increasing the gases in the atmosphere that trap heat, thereby contributing to an average increase in the Earth's temperature.

GHGs occur naturally and from human activities. Human activities that produce GHGs are the burning of fossil fuels (coal, oil and natural gas for heating and electricity, gasoline and diesel for transportation); methane from landfill wastes and raising livestock; deforestation activities; and some agricultural practices. GHGs produced by human activities include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Emissions of GHGs affect the atmosphere directly by changing its chemical composition while changes to the land surface indirectly affect the atmosphere by changing the way in which the Earth absorbs gases from the atmosphere. Potential impacts of global climate change in California may include loss of snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years (CEC 2009).

The County adopted the CCAP in August 2015 (County 2015). The CCAP, which is a component of the County General Plan, sets a target to reduce GHG emissions from community activities in the unincorporated areas of Los Angeles County by at least 11 percent below 2010 levels by 2020. The CCAP describes the County's plan for achieving this goal, including specific strategy areas for each of the major emission sectors, and provides details on the 2010 and projected 2020 emissions in the unincorporated areas. The actions in the CCAP are priority actions and intended for near-term implementation, such that the County can achieve its GHG reduction goal for 2020 for the unincorporated areas of Los Angeles County. The CCAP includes 26 local actions to reduce GHG emissions, grouped into five strategy areas: green building and energy; land use and transportation; water conservation and wastewater; waste reduction, reuse, and recycling; and land conservation and tree planting.

However, the CCAP's reductions only extend to 2020 and the County does not have a GHG reduction plan that applies to the project's estimated operational year of 2024. In the absence of any adopted, quantitative thresholds of significance, the project's GHG emissions would be considered less than significant if there is substantial evidence to support the finding that the project is substantially consistent with applicable qualified greenhouse gas reduction plans. CARB's 2017 Scoping Plan and SCAG's 2016 RTP/SCS would be considered applicable greenhouse gas reduction plans; therefore, project consistency with the plans is used to determine significance. Emissions associated with the project were estimated using CalEEMod, version 2016.3.2. Complete CalEEMod results and assumptions can be viewed in Appendix A.

a. Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

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

GHG emissions associated with construction emissions and operation emissions from the project are discussed below.

Construction Emissions

It was assumed that construction activity would begin June 2022 with completion by the end of 2023. As shown in Table 12, construction activity for the project would generate an estimated 1,829.0 MT of CO_2e. When amortized over a 30-year period, construction of the project would generate 61.0 MT of CO_2e per year.

Table 12 Estimated Construction Emissions of Greenhouse Gases

Construction Year	Annual Emissions MT CO_2e
2022	922.5
2023	906.5
Total	**1,829.0**
Amortized over 30 years	**61.0**

Notes: Emissions modeling was completed using CalEEMod. See Appendix A for modeling results. Some numbers may not add up due to rounding. Emission data is pulled from "mitigated" results that include compliance with regulations and project design features that will be included in the project.

Operational and Total Project Emissions

Table 13 combines the construction and operational GHG emissions associated with development of the project. As shown, annual emissions from the proposed project would be approximately 1,715.9 MT of CO_2e.

Table 13 Combined Annual Emissions of Greenhouse Gases

Emission Source	Annual Emissions MT CO_2e
Construction	61.0
Operational	
Area	1.8
Energy	678.0
Mobile	671.9
N_2O (Mobile)	13.0
Solid Waste	218.9
Water	71.3
Net Total	**1,715.9**

Notes: Emissions modeling was completed using CalEEMod, except for N_2O mobile emissions. N_2O mobile emissions completed per method described under Methodology. See Appendix A for modeling results. Some numbers may not add up due to rounding. Emission data is pulled from "mitigated" results that include compliance with regulations and project design features that will be included in the project.

Greenhouse Gas Emissions Impacts

There are numerous state plans, policies, and regulations adopted for the purpose of reducing GHG emissions. The principal state plan and policy is AB 32, the California Global Warming Solutions Act of 2006, and the follow up, SB 32. The quantitative goal of AB 32 is to reduce GHG emissions to 1990 levels by 2020 and the goal of SB 32 is to reduce GHG emissions to 40 percent below 1990 levels by 2030. Per the SB 32 goal, the 2017 Scoping Plan was created to outline goals and measures for the state to achieve the reductions. As shown in Table 14, the project is consistent with the applicable GHG reduction strategies in the 2017 Scoping Plan.

Table 14 Consistency with Applicable 2017 Scoping Plan Greenhouse Gas Reduction Strategies

Strategy/Action	Project Consistency
Low Carbon Energy	
a. Reduce fossil fuel use b. Reduce energy demand	**Consistent.** The Monastery would be developed within 0.5 mile of the nearest bus stop at Colima Road and South Hacienda Boulevard. In addition, the senior monastics that would be using the Monastery dormitories would not drive or own personal cars, and are anticipated to generally remain on-site. They would have access to ride-sharing to and from the Monastery. The preliminary project trip generation estimates that ridesharing by senior monastics would reduce trips from these occupants by 50 percent (LLG 2019). This would reduce fossil fuel use. In addition, the design and implementation of the proposed project would comply with the County Green Building Code Title 31, which requires the implementation of LID standards, installation of electric vehicle parking spaces and hook ups, and the use of cool roofing materials, and the 2019 Title 24 building standards, which include measures to reduce energy demand compared to the previous standards, such as updating indoor and outdoor lighting making maximum use of LED technology, and improving the building's thermal envelope performance.
Transportation Sustainability	
a. Promote feasible policies to reduce VMT, including increasing low carbon mobility choices, including improved access to viable and affordable public transportation and active transportation opportunities. b. Promote shared-use mobility, such as bike sharing, car sharing and ride-sourcing services to bridge the "first mile, last mile" gap between commuters' transit stops and their destinations	**Consistent.** The Monastery would be developed within 0.5 mile of the nearest bus stop at Colima Road and South Hacienda Boulevard. In addition, the senior monastics that would be using the Monastery dormitories do not drive and would not own personal cars, and are anticipated to generally remain on-site. They would have access to ride-sharing to and from the Monastery. The preliminary project trip generation estimates that ridesharing by senior monastics would reduce trips from these occupants by 50 percent, thereby reducing VMT (LLG 2019).
Waste Management	
a. Maximize recycling and diversion from landfills.	**Consistent.** The project would be consistent with AB 341, which results in a waste diversion rate of 75 percent.

Source: CARB 2017

The County adopted the CCAP in 2015 to implement GHG reduction strategies from unincorporated County communities to at least 11 percent below 2010 levels by 2020. The project's construction and operation would occur after the covered timeline of the CCAP and the project would not tier from the CCAP, and the County has not prepared a CCAP post-2020. However, the project's consistency with applicable CCAP GHG reduction strategies goals is still analyzed in Table 15. As shown, the project is consistent with the applicable GHG reduction strategies in the County's CCAP.

Table 15 Consistency with Applicable County Community Climate Action Plan Greenhouse Gas Reduction Strategies

Strategy/Action	Project Consistency
Land Use and Transportation	
LUT-4, Travel Demand Management. Encourage ride- and bike-sharing programs and employer-sponsored vanpools and shuttles. Encourage market-based bike sharing programs that support bicycle use around and between transit stations/hubs. Implement marketing strategies to publicize these programs and reduce commute trips	**Consistent.** The project would use a ride-sharing vehicle for the senior monastics.
LUT-6, Land Use Design and Density. Promote sustainability in land use design, including diversity of urban and suburban developments. This action includes approaches that encourage transit oriented districts (TODs), infill development, pedestrian-friendly and community-serving uses near transit stops, and increased transit use.	**Consistent.** The Monastery would be developed within 0.5 mile of the nearest bus stop at Colima Road and South Hacienda Boulevard. The senior monastics that would be using the Monastery dormitories do not drive and would not own personal cars, and are anticipated to generally remain on-site. They would have access to ride-sharing to and from the Monastery. The preliminary project trip generation estimates that ridesharing by senior monastics would reduce trips from these occupants by 50 percent (LLG 2019).
LUT-9, Idling Reduction Goal. Encourage idling limits of three minutes for heavy-duty construction equipment, as feasible within manufacturer's specifications.	**Consistent.** Section 2485 in Title 13 of the California Code of Regulations limits the idling of all diesel-fueled commercial vehicles (weighing over 10,000 pounds) during construction to five minutes at any location. The project shall comply with this regulatory requirement and would encourage construction contractors to further limit idling to three minutes or less when practicable and feasible.
Land Conservative and Tree Planting	
LC-1, Develop Urban Forests. Support and expand urban forest programs within the unincorporated areas.	**Consistent.** The project would develop the existing hillside, mostly containing grasses and shrubs, and implement landscaping on the site that would include various trees to complement the connection between the Monastery and nature. In addition, the portions of the site on which mature oaks trees are found would be largely preserved.
LC-2, Create New Vegetated Open Space. Restore and revegetate previously disturbed land and/or unused urban and suburban areas. This action promotes the conversion of unused urban and suburban areas to parks and forests.	**Consistent.** Approximately 10 acres of the site would be preserved as undeveloped open space. In addition, the project site contains oak tree communities. The proposed landscape plan includes the planting of oak trees in the southern portion of the site, along the new multi-use trail, to replace those that would be lost due to the Monastery buildings.
LC-4, Protect Conservation Areas. Encourage the protection of existing land conservation areas.	**Consistent.** Approximately 10 acres of the site would be preserved as undeveloped open space. In addition, the project site contains oak tree communities. The proposed landscape plan includes the planting of oak trees in the southern portion of the site, along the new multi-use trail, to replace those that would be lost due to the Monastery buildings.
Waste Reduction, Reuse, and Recycling	
SW-1, Waste Diversion Goal. For the County's unincorporated areas, adopt a waste diversion goal to comply with all state mandates to divert at least 75% of waste from landfill disposal by 2020.	**Consistent.** The project would be consistent with AB 341, which results in a waste diversion rate of 75 percent.

Source: County 2015

The project's consistency with applicable GHG policies in the Hacienda Heights Community Plan is shown in Table 16. As shown, the project is consistent with the applicable GHG policies in the Hacienda Heights Community Plan.

Table 16 Consistency with Applicable Hacienda Heights Community Plan Greenhouse Gas Policies

Strategy/Action	Project Consistency
Policy C 4.4: Encourage efforts to reduce greenhouse gas emissions	**Consistent.** As described within this section, the project would be consistent with applicable GHG reduction plans and policies, such as the 2017 Scoping Plan and 2016 RTP/SCS, and would therefore be consistent with efforts to reduce GHG emissions.
Goal C 5: A community that is energy-efficient, reduces energy and natural resource consumption, and reduces emissions of greenhouse gases.	**Consistent.** As described within this section, the project would be consistent with applicable GHG reduction plans and policies, such as the 2017 Scoping Plan and 2016 RTP/SCS, and would therefore be consistent with efforts to reduce GHG emissions. In addition, the design and implementation of the proposed project would comply with the County Green Building Code Title 31, which requires the implementation of LID standards, installation of electric vehicle parking spaces and hook ups, and the use of cool roofing materials, and the 2019 Title 24 building standards, which include measures to reduce energy demand compared to the previous standards, such as updating indoor and outdoor lighting making maximum use of LED technology and improving the building's thermal envelope performance.
Policy C 5.1: Support the county's efforts to create an adopted Climate Action Plan by 2015 that meets state requirements and includes emission inventories, enforceable reduction measures, regular progress reviews, procedures for reporting on and revising the plan, and provides for resources to implement the Plan.	**Consistent.** As described above, the County's CCAP, which was created in 2015, would not be an applicable document for the project to tier off as the CCAP only is applicable up to 2020. However, as shown in Table 12, the project would nonetheless be consistent with CCAP policies.

Source: County 2011

Table 17 illustrates the project's consistency with relevant goals and strategies embodied in Chapter 5, On the Road to Greater Mobility and Sustainable Growth, of the 2016 RTP/SCS (SCAG 2016). As shown, the project is consistent with the applicable strategies in the 2016 RTP/SCS.

Table 17 Consistency with Applicable SCAG RTP/SCS GHG Emission Reduction Strategies

Strategy/Action	Project Consistency
Land Use and Transportation	
Focus new growth around transit. The 2016 RTP/SCS land use pattern reinforces the trend of focusing growth in the region's High Quality Transit Areas (HQTAs). Concentrating housing and transit in conjunction concentrates roadway repair investments, leverages transit and active transportation investments, reduces regional life cycle infrastructure costs, improves accessibility, avoids greenfield development, and has the potential to improve public health and housing affordability. HQTAs provide households with alternative modes of transport that can reduce VMT and GHG emissions.	**Consistent.** The Monastery would be developed within 0.5 mile of the nearest bus stop at Colima Road and South Hacienda Boulevard. The senior monastics that would be using the Monastery dormitories do not drive and would not own personal cars, and are anticipated to generally remain on-site. They would have access to ride-sharing to and from the Monastery. The preliminary project trip generation estimates that ridesharing by senior monastics would reduce trips from these occupants by 50 percent (LLG 2019).

Strategy/Action	Project Consistency
Plan for growth around livable corridors. The Livable Corridors strategy seeks to create neighborhood retail nodes that would be walking and biking destinations by integrating three different planning components: Transit improvements Active transportation improvements (i.e., improved safety for walking and biking) Land use policies that include the development of mixed-use retail centers at key nodes and better integrate different types of ritual uses.	**Consistent.** The Monastery would be developed within 0.5 mile of the nearest bus stop at Colima Road and South Hacienda Boulevard. The senior monastics that would be using the Monastery dormitories do not drive and would not own personal cars, and are anticipated to generally remain on-site. They would have access to ride-sharing to and from the Monastery. The preliminary project trip generation estimates that ridesharing by senior monastics would reduce trips from these occupants by 50 percent (LLG 2019).
Provide more options for short trips. 38 percent of all trips in the SCAG region are less than three miles. The 2016 RTP/SCS provides two strategies to promote the use of active transport for short trips. Neighborhood Mobility Areas are meant to reduce short trips in a suburban setting, while “complete communities” support the creation of mixed-use districts in strategic growth areas and are applicable to an urban setting.	**Consistent.** The Monastery would be developed within 0.5 mile of the nearest bus stop at Colima Road and South Hacienda Boulevard. The senior monastics that would be using the Monastery dormitories do not drive and would not own personal cars, and are anticipated to generally remain on-site. They would have access to ride-sharing to and from the Monastery. Project users would have access to public transit and alternative means of transportation would be available for access to and from the project site.
Protect Natural and Farm Lands. Many natural and agricultural land areas near the edge of existing urbanized areas do not have plans for conservation and they are susceptible to the pressures of development. Many of these lands, such as riparian areas, have high per-acre habitat values and are host to some of the most diverse yet vulnerable species that play an important role in the overall ecosystem.	**Consistent.** Approximately 10 acres of the site would be preserved as undeveloped open space.
Transit Initiatives	
Develop first-mile/last-mile strategies on a local level to provide an incentive for making trips by transit, bicycling, walking, or neighborhood electric vehicle or other ZEV options.	**Consistent.** The Monastery would be developed within 0.5 mile of the nearest bus stop at Colima Road and South Hacienda Boulevard. Therefore, project users would have access to public transit within walking distance of the site. In addition, the senior monastics would have access to the project’s ride-sharing for access to and from the project site. This would allow for first-mile/last-mile not using single-occupancy vehicles.
Other Initiatives	
Reduce emissions resulting from a project through implementation of project features, project design, or other measures. Incorporate design measures to reduce energy consumption and increase use of renewable energy.	Consistent The design and implementation of the proposed project would comply with CALGreen Building Standards, which includes measures to reduce emissions. The project would also comply with SCAQMD Rule 1113 that limits ROGs from building architectural coatings.

Source: SCAG 2016

As demonstrated above, the project is consistent with state and local policies for reducing GHG emissions, including the 2017 Scoping Plan, County's CCAP, Hacienda Heights Community Plan Greenhouse Gas, and 2016 RTP/SCS. Therefore, the project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, or conflict with applicable plans, policies, or legislation related to GHG emissions. Therefore, the project would have a **less than significant impact**, and further analysis in the forthcoming EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

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 reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	□	□	■	□
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?	□	□	■	□
d. Be located on a site that is included on a list of hazardous material 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?	□	□	□	■
e. For a project located in 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?	■	□	□	□

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

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?

Potential hazardous materials, such as fuel, paint products, lubricants, solvents, and cleaning products, may be used and/or stored on-site during the construction of the project. However, due to the limited quantities of these materials to be used by the project, they are not considered hazardous to the public at large. The transport, use, and storage of hazardous materials during project construction would be conducted pursuant to all applicable federal, state, and local policies, including but not limited to Title 49 of the Code of Federal Regulations implemented by Title 13 of the CCR, which describes strict regulations for the safe transportation of hazardous materials, and in cooperation with the County Fire Department's Health Hazardous Materials Division.

The proposed land use, as a monastery, would not entail the manufacturing or disposal of hazardous materials. The Monastery would store and use materials typical for building maintenance and cleaning for regular upkeep of the meditation halls, classrooms, dormitories, kitchens and tea room, and grounds. Therefore, these materials would not be considered hazardous to the public at large due to the limited quantities that would be used during project operation. Therefore, the project would have a **less than significant impact**, and further analysis in the forthcoming EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

c. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?

Los Molinos Elementary School (3112 Las Marias Avenue) is located approximately 0.6 mile north of the project site. Most potential hazardous materials would be on the project site during construction-related activities and would not be considered hazardous to the public due to limited quantities. The project would also follow relevant federal, state, and local policies to ensure the project would not create significant hazards to the public and environment. The proposed Monastery would not emit hazardous emissions or handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of existing or proposed schools directly, indirectly, or cumulatively. Therefore, the project would have a **less than significant impact**, and further analysis in the forthcoming EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

d. *Would the project be located on a site that is included on a list of hazardous material 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?*

The following resources were reviewed to evaluate the presence of hazardous materials onsite: 1) online Cortese List database[4], 2) California State Water Resource Control Board's (SWRCB's) online GeoTracker database, 3) California Department of Toxic Substances Control's (DTSC's) online EnviroStor database, 4) online historic aerial photographs dating back to 1952, 5) online historic topographic maps dating back to 1896, 6) State of California Geologic Energy Management Division (CalGEM) Online Mapping System[5], 7) Los Angeles County Department of Public Works Solid Waste Information Management System[6], 8) National Pipeline Mapping System (NPMS) online Public Map Viewer[7], and 9) SWRCB polyfluroakyl substances (PFAS) database[8].

A review of the online Cortese List database found that the project site is not listed as a hazardous materials site. The nearest hazardous site is located at 3123 South Hacienda Boulevard, approximately 0.3 mile north of the project site, and is not included on the Cortese list. According to the SWRCB's online GeoTracker database, no unauthorized release sites were identified within 1,000 feet of the subject property and according to the DTSC's online EnviroStor database, no unauthorized release sites were identified within one-half mile of the subject property.

According to a review of available online historic aerial photographs dating back to 1952, the project site has remained undeveloped, with the exception of the current existing residence on the northern portion of the site, which was constructed in approximately 2005 and according to a review of available online historic topographic maps dating back to 1896, the subject property has not been used for agricultural use or other uses of concern.

A review of the CalGEM Online Mapping System indicates that no oil wells are located on the subject property or adjacent properties. However, the subject property is partially located in the Sansinena oil/gas field, and the following oil wells are located within one-quarter mile of the subject property:

- API 0403715256 – plugged oil and gas well operated by Chevron U.S.A. Inc.
- API 0403715255 – plugged oil and gas well operated by Chevron U.S.A. Inc.
- API 0403715254 – plugged oil and gas well operated by Chevron U.S.A. Inc.
- API 0403715252 – plugged oil and gas well operated by Chevron U.S.A. Inc.

In 2019, the California SWRCB sent assessment requirements to property owners of sites that may be potential sources of PFAS. These sites currently include select landfills, airports, and chrome plating facilities. According to the SWRCB, "PFAS are a large group of human-made substances that do not occur naturally in the environment and are resistant to heat, water, and oil" (SWRCB 2019). Review of the California 2019 Statewide PFAS Investigation online Public Map Viewer indicates that there are no current chrome plating, airport, or landfill PFAS orders at any facilities located within one-half mile of the subject property. Additionally, review of the California 2019 Statewide Drinking

[4] https://www.envirostor.dtsc.ca.gov/public/search.asp?cmd=search&reporttype=CORTESE&site_type=CSITES,OPEN,FUDS,CLOSE&status=ACT,BKLG,COM&reporttitle=HAZARDOUS+WASTE+AND+SUBSTANCES+SITE+LIST

5 https://www.conservation.ca.gov/calgem/Pages/WellFinder.aspx

6 https://dpw.lacounty.gov/epd/swims/OnlineServices/search-methane-hazards-esri.aspx

7 https://www.npms.phmsa.dot.gov/PublicViewer/

8 https://www.waterboards.ca.gov/pfas/. Accessed June 5, 2020.

Water System Quarterly Testing Results online Public Map Viewer indicates that no drinking water wells have been tested for PFAS within two miles of the subject property.

According to the information reviewed, the project would have **no impact**, and further analysis in the forthcoming EIR is not warranted.

NO IMPACT

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?*

The project site is not located in any airport land use plan area or within two miles of a public airport. The nearest airport is the Fullerton Municipal Airport (4011 W. Commonwealth Avenue) in the city of Fullerton, approximately 9 miles south of the project site in Orange County. The project site is outside of the airport's influence area (Orange County 2004). Therefore, the project would not result in aviation-related safety hazards or excessive noise for people residing or working in the project area. The project would have **no impact**, and further analysis of this issue in the forthcoming EIR is not warranted.

NO IMPACT

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

The construction and operation of the project would not substantially alter or otherwise interfere with public rights-of-way and would provide adequate internal ingress and egress for necessary emergency response vehicles. The project site is located approximately two miles southwest of the nearest disaster route, located on State Route 60 as shown on Figure 12.6, *Disaster Routes Map*, of the County's General Plan 2035. The project would not interfere with traffic circulation on designated disaster routes during construction or operation. The project would be required to comply with all applicable California Fire Code (Title 24, California Code of Regulations, Section 9) requirements. Therefore, the project would have **no impact**, and further analysis of this issue in the forthcoming EIR is not warranted.

NO IMPACT

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

The project site is located on an undeveloped parcel in the Puente Hills, which are in a Very High Fire Hazard Severity Zone as shown in Figure 12.5, *Fire Hazard Severity Zones Policy Map*, of the County's General Plan 2035. The project would be required to submit a Fuel Modification Plan per County Code Section 4908.1 and follow applicable guidelines with the proposed development. The project site has the potential to expose people and structures to a risk of loss, injury, or death during a wildfire event. Further discussion of wildfire risks is included in Section 20, *Wildfire*. The project may result in a **potentially significant impact,** and further analysis in the forthcoming EIR is required.

POTENTIALLY SIGNIFICANT IMPACT

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 ground water quality?	■	☐	☐	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	■	☐	☐	☐
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
(i) Result in substantial erosion or siltation on- or off-site;	■	☐	☐	☐
(ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	■	☐	☐	☐
(iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	■	☐	☐	☐
(iv) Impede or redirect flood flows?	■	☐	☐	☐
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	■	☐	☐	☐
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	■	☐	☐	☐

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

DAX Consulting Civil Engineering (DAX Consulting) prepared the Preliminary Hydrology/Low Impact Design (LID) Report for the project, included as Appendix F.

Construction activities could temporarily alter the draining pattern onsite due to the handling, storage, and disposal of construction materials containing pollutants; the maintenance and operation of construction equipment; and grading activities that may generate soil erosion via storm runoff. The project site consists of approximately 29 acres and entails disturbance and development of approximately 19 acres with most of the disturbed area being new impervious area (DAX Consulting 2018). Therefore, the project is subject to the National Pollutant Discharge Elimination System (NPDES) permit issued by the SWRCB, administered by the Los Angeles Regional Water Quality Control Board (RWQCB), for storm water discharges from construction sites (Los Angeles County 2014b). Coverage by the County's General NPDES Permit is accomplished by completing and filing a Notice of Intent with the SWRCB and developing and implementing a Storm Water Pollution Prevention Plan (SWPPP) (Los Angeles County 2014b). County Code Title 26 Section J110 contains provisions for SWPPPs.

The Preliminary Hydrology/LID Report (still under review by the Department of Public Works) states that, per the County's LID Manual, the project is considered a "Designated Project" since proposed development would disturb over one acre and would add more than 10,000 square feet of impervious surface area. As such, the project would be required to implement post-construction storm water management control measures on-site through infiltration, evapotranspiration, storm water runoff harvest and use, or a combination of the three.

The project would not violate any water quality standards, waste discharge requirements, or degrade surface or ground water quality. The project includes implementation of a rainwater harvest system to retain the storm water quality design volume associated with the project site. The rainwater harvest system would consist of an underground infiltration system that includes pretreatment upstream in the form of a hydrodynamic separator to remove trash and sediment prior to runoff entering the infiltration system. Therefore, the project was determined to be exempt from hydromodification requirements (DAX Consulting 2018). The project would comply with County Code Title 26 Section J110 and prepare a SWPPP prior to issuance of a grading permit. The SWPPP would contain details of best management practices applicable to the project site, such as temporary drainage or control measures.

The Preliminary Hydrology/LID Report concludes that the project would meet the requirements outlined in the County DPW LID Manual through the inclusion of the proposed rainwater harvest system and underground infiltration system with pre-treatment (DAX Consulting 2018). However, the Preliminary Hydrology/LID Report is still under review by the Department of Public Works, and until accepted as final by the County, the project is conservatively assumed to have a **potentially significant impact**, and further analysis in the forthcoming EIR is warranted.

POTENTIALLY SIGNIFICANT IMPACT

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?*

The project entails construction of 17 new buildings that would comprise the Monastery. Project operation would incrementally increase the County's water consumption. Water would be provided by the San Gabriel Valley Water Company (SGVWC). The project site plans indicate building footprints and placements, driveways, walkways and nature paths, and landscaping throughout the site. Implementation of the project would increase impervious surfaces on the project site, which is mostly undeveloped. The project would change infiltration and drainage of the site. However, the project would not utilize groundwater supplies. There are no active groundwater wells on the project site (Los Angeles County DPW 2019b). Furthermore, groundwater sources were not encountered on the project site during subsurface investigations (ENGEO Incorporated, 2018). However, the Preliminary Hydrology/LID Report is still under review by the Department of Public Works, and until accepted as final by the County, the project is conservatively assumed to have a potentially significant impact, and further analysis in the forthcoming EIR is warranted.

POTENTIALLY SIGNIFICANT IMPACT

c.(i) *Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on- or off-site?*

The project site consists of approximately 29 acres, and the project entails disturbance and development of approximately 19 acres with most of the disturbed area being new impervious area (DAX Consulting 2018). Furthermore, the project entails the excavation and construction of a five-story subterranean parking garage. The project site may experience erosion and/or siltation during construction activities. The project may have a **potentially significant impact**, and further analysis in the forthcoming EIR is warranted.

POTENTIALLY SIGNIFICANT IMPACT

c.(ii) *Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?*

c.(iii) *Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?*

c.(iv) *Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows?*

The project would increase the area of impervious surfaces on the site. However, the project would be required to implement post-construction storm water management control measures on-site through infiltration, evapotranspiration, storm water runoff harvest and use, or a combination of the three. The project was determined to be exempt from hydromodification requirements (DAX

Consulting 2018). Furthermore, the project would comply with County Code Title 26 Section J110 and prepare a SWPPP prior to issuance of a grading permit. However, the Preliminary Hydrology/LID Report is still under review by the Department of Public Works, and until accepted as final by the County, the project is conservatively assumed to have a **potentially significant impact**, and further analysis in the forthcoming EIR is warranted.

POTENTIALLY SIGNIFICANT IMPACT

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

The project site is in Federal Emergency Management Agency (FEMA) flood zone "D" (U.S. Department of Homeland Security 2008). The Zone D designation is used for areas where there are possible but undetermined flood hazards, as no analysis of flood hazards has been conducted. The project site is not located in flood or tsunami hazard zones, according to Figure 12.2 *Flood Hazard Zones Policy Map* and Figure 12.3 *Tsunami Hazard Areas* of the County's General Plan 2035 (Los Angeles County DRP 2015a). Legg Lake is the nearest enclosed body of water to the project site, approximately six miles northwest; the project site is not within a seiche zone based on distance to Legg Lake and project site topography. Furthermore, the proposed Monastery use would not generate pollutants and the site is not located in area that risks inundation. While the Preliminary Hydrology/LID Report is still under review by the Department of Public Works, the project is conservatively assumed here to have a **potentially significant impact**; further analysis in the forthcoming EIR is warranted to address any potential unknown changes resulting from Public Works review of the Hydrology/LID Report.

POTENTIALLY SIGNIFICANT IMPACT

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

The project would not conflict with or obstruct applicable policies in the County's General Plan 2035 or the Los Angeles Regional Board's Basin Plan. The project aims to comply with applicable provisions in the County's Hydrology Manual and LID Standards Manual. However, the Preliminary Hydrology/LID Report is still under review by the Department of Public Works, and until accepted as final by the County, the project is conservatively assumed to have a **potentially significant impact**, and further analysis in the forthcoming EIR is warranted.

POTENTIALLY SIGNIFICANT IMPACT

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?	☐	☐	■	☐

a. Would the project physically divide an established community?

The project site is undeveloped, except for the existing single-family residence, and is sited adjacent to a single-family residential neighborhood to the north. The project site is bounded by South Hacienda Boulevard to the east, and an unimproved/unpaved site access way traverses the project site east to west. The access way is currently used as a public multi-use recreational trail, maintained by the County. The project site plan indicates a realignment of the existing access way to be used as the proposed Monastery's primary access route and to provide vehicular access to the proposed buildings. Off-site access for fire and utility agencies would continue to be provided through the subject property along the existing access way as shown in Figure 3. The project includes the development of a designated multi-use trail for public recreational use along the southeastern portion of the project site that would connect to the Arroyo San Miguel trail network off-site to the west of the project site. A single-family residence is located on one of the three project parcels (APN 8291-035-021), which would be renovated for use as a volunteers' dormitory as part of the project. The two northeastern project parcels contain sidewalks at the end of the Lotus Drive cul-de-sac, which the project would not alter. The project would not result in the removal or division of established community infrastructure (ex. sidewalks, roads, bike lanes). Therefore, the project would have **no impact**, and further analysis in the forthcoming EIR is not warranted.

NO IMPACT

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?

The County General Plan 2035 provides goals and policies to achieve countywide planning objectives for the unincorporated areas and serves as the foundation for all community-based plans. Community plans cover smaller geographic areas within the Planning Area, and address neighborhood and/or community-level policy issues. The project site is in the unincorporated community of Hacienda Heights and is designated in the RL2 (Rural Lands 2 – Maximum one dwelling unit per every two acres) land use category of the Hacienda Heights Community Plan (Los Angeles County DRP 2011). This land use category is meant to provide lands suitable for agricultural production, preserve areas of significant natural and scenic resources, and limit intensive development in areas subject to natural hazards or lacking in essential services and infrastructure. Intended uses of RL2 land use category include single-family residential development; rural, equestrian, agricultural, and other related activities; and local-servicing ancillary commercial uses. Table 18 compares the project to applicable General Plan and Community Plan policies.

Table 18 Consistency with General Plan and Community Plan Policies

Policies	Consistent?	Analysis
County General Plan 2035		
Land Use Element		
Policy LU 6.2. Encourage land uses and developments that are compatible with the natural environment and landscape.	Yes	The proposed Monastery would be consistent with applicable measures in the County's Hillside Design Guidelines to preserve ridgelines and views. Based on project site plans, the project is designed to have minimal grading and site disturbance, and proposed buildings are strategically placed and nestled into existing topographic contours.
Policy LU 6.3. Encourage low density and low intensity development in rural areas that is compatible with rural community character, preserves open space, and conserves agricultural land.	Yes	The proposed new buildings would be located on the northern portion of the project site, and the multi-use public trail would be realigned along the southern portion of the project site. The project entails preservation of existing vegetation communities to the greatest extent feasible, and the planting of trees and ornamental vegetation with low to moderate water needs. The proposed landscape plan also indicates the replacement of oak trees for those that may be removed or damaged during the realignment of the proposed public trail.
Policy LU 10.2. Design development adjacent to natural features in a sensitive manner to complement the natural environment.	Yes	The proposed Monastery would be consistent with applicable measures in the County's Hillside Design Guidelines to preserve ridgelines and views. Based on project site plans, the project is designed to have minimal grading and site disturbance, and proposed buildings are strategically placed and nestled into existing topographic contours.
Policy LU 10.3. Consider the built environment of the surrounding area and location in the design and scale of new or remodeled buildings, architectural styles, and reflect appropriate features such as	Yes	Existing uses adjacent to the project site include single-family residential homes to the north, open space to the south and west, and the existing Hsi Lai Temple to the east across South Hacienda Boulevard. The proposed Monastery buildings would be situated along existing hillsides and designed to be visually compatible with the nearby Temple, while at the same time providing for an independent identity. The building palate was

Policies	Consistent?	Analysis
massing, materials, color, detailing or ornament.		chosen in line with Buddhist beliefs, and would include locally sourced, fire resistant materials. The building massing would be scaled down to be consistent with the residential uses to the north. The smaller buildings to the west of the project site would be broken down into smaller building blocks to minimize the grading footprint and maximum undisturbed open space required by the County's Hillside Grading Ordinance. The proposed main buildings to be located at the east end of the site, fronting South Hacienda Boulevard, would be comparable in massing to existing Temple buildings. Proposed buildings nestled along the northern portion of the site, adjacent to single-family homes, would be smaller in massing and scale than the main buildings, and placed to blend in with the natural site topography.
Policy LU 10.4. Promote environmentally-sensitive and sustainable design.	Yes	The proposed buildings would be sited to complement the existing site topography. Rather than containing the proposed programed space in a single large building, the site plan shows smaller dormitory, classroom, and office buildings to be in the west end of the site. The existing site access way would also be realigned as part of the project, with driveway curves designed along existing topography. The proposed buildings would be placed to maximize natural light into the interior spaces, and the proposed landscape plan indicates the planting of trees and ornamental vegetation with low to moderate water needs. The proposed landscape plan also indicates the replacement of oak trees for those that may be removed during the realignment of the proposed public trail.
Policy LU 11.1. Encourage new development to employ sustainable energy practices, such as utilizing passive solar techniques and/or active solar technologies.	Yes	The proposed buildings would be compliant with 2019 California Building Code (CBC) Title 24 measures for building energy efficiency. Energy-efficient technologies such as automatic lighting controls with motion/occupancy sensors and energy management control systems may be considered for incorporation into the proposed buildings. In addition, the design and implementation of the proposed project would comply with the County Green Building Code Title 31, which requires the implementation of LID standards, installation of electric vehicle parking spaces and hook ups, and the use of cool roofing materials.
Policy LU 11.2. Support the design of developments that provide substantial tree canopy cover, and utilize light-colored paving materials and energy-efficient roofing materials to reduce the urban heat island effect.	Yes	The project site plans indicate the use of light-colored paving materials for the pedestrian walkway that would connect the Monastery buildings for use by Monastery visitors. The proposed landscape plan indicates the planting of over 300 trees and ornamental vegetation with low to moderate water needs. Trees would be planted along the buildings, pedestrian walkways, the public multi-use trail, and ridgeline to blend the proposed Monastery in with adjacent open space areas to the west and south. The proposed trees would provide sufficient canopy cover throughout the project site.
Policy LU 11.3. Encourage development to optimize the solar orientation of buildings to maximize passive and active solar design techniques.	Yes	The proposed buildings would be sited to complement the existing site topography. The proposed buildings would be placed to maximize natural light into the interior spaces.

Policies	Consistent?	Analysis
Conservation and Natural Resources Element		
Policy C/NR 1.5. Provide and improve access to dedicated open space and natural areas for all users that considers sensitive biological resources.	Yes	The project would provide a realigned multi-use trail for public use, accessible from South Hacienda Boulevard, with connections to existing trails in the Arroyo San Miguel trail network. The realigned trail would run along the southern portion of the project site and preserve existing vegetation communities.
Policy C/NR 4.1. Preserve and restore oak woodlands and other native woodlands that are conserved in perpetuity with a goal of no net loss of existing woodlands.	Yes	The project site contains oak tree communities. The proposed landscape plan includes the planting of oak trees in the southern portion of the site, along the realigned multi-use trail, to replace those that would be lost due to the Monastery buildings. The project would be subject to the County's Oak Tree Ordinance, under which individually protected trees would be replaced at a 2:1 ratio for standard sized oak trees and 10:1 for heritage oaks removed during construction activities. The project would further be subject to monitoring and inspections by the County Forester under the Oak Tree Permit to ensure establishment of the replacement trees.
Policy C/NR 13.2. Protect ridgelines from incompatible development that diminishes their scenic value.	Yes	Aesthetic impacts to the project site are discussed in detail in Section 1, *Aesthetics*, of this Initial Study, and will be further analyzed in the forthcoming EIR. However, the project would be consistent with applicable measures of the County's Hillside Design Guidelines to ensure the protection of ridgeline views, in line with Policy C/NR 13.2. Although the project's access road would cross a protected ridgeline at one location, the overall development avoids the ridges. The project is designed to preserve existing terrain and vegetation communities. The proposed landscape plan entails planting primarily along the northern edge of the project site to further limit visibility of the Monastery buildings from the north.
Policy C/NR 13.5. Encourage required grading to be compatible with the existing terrain.	Yes	The project is designed to minimize grading and impacts to the site, to preserve existing terrain and vegetation communities. The proposed buildings would be nestled into the hillsides and blend with the site topography to preserve ridgeline views. The project would be consistent with applicable measures in the County's Hillside Design Guidelines.
Parks and Recreation Element		
Policy P/R 4.4. Maintain and design multi-purpose trails in ways that minimize circulation conflicts among trail users.	Yes	The project would provide a realigned multi-use trail for public use, accessible from South Hacienda Boulevard, with connections to existing trails in the Arroyo San Miguel trail network. The new trail would run along the southern portion of the project site and preserve existing vegetation communities.
Safety Element		
Policy S 1.3. Require developments to mitigate geotechnical hazards, such as soil instability and landsliding, in Hillside Management Areas through siting and development standards.	Yes	Geotechnical hazards present on the project site are discussed in detail in Section 7, *Geology and Soils* of this Initial Study, and will be further analyzed in the forthcoming EIR. However, the project would be consistent with all applicable measures of the County's Hillside Design Guidelines.

Policies	Consistent?	Analysis
Policy S 3.7. Site and design developments located within FHSZs, such as in areas located near ridgelines and on hilltops, in a sensitive manner to reduce the wildfire risk.	Yes	Wildfire hazards present on the project site are discussed in detail in Section 20, *Wildfire* of this Initial Study, and will be further analyzed in the forthcoming EIR. However, a fuel modification plan would be completed for the project pursuant to County Code Title 32, Section 4908.1.
Hacienda Heights Community Plan		
Land Use		
Policy LU 3.2. Encourage the dedication of new and existing open space areas, including trails, ridges, and hillsides, to a public or private land preservation agency, such as the Puente Hills Landfill Native Habitat Preservation Authority, to be held in perpetuity.	Yes	The project entails the realignment of the existing assess way to be used as a driveway within the proposed Monastery, with the designation of a new multi-use nature trail for public recreation on the southern portion of the project site. The new multi-use trail would connect to the Arroyo San Miguel trail network and be managed by the project applicant in coordination with the Los Angeles County Department of Parks and Recreation.
Policy LU 4.1. Minimize alteration of the hillside caused by development.	Yes	The project is designed to minimize grading and impacts to the site, to preserve existing terrain and vegetation communities. The proposed buildings would be nestled into the hillsides and blend with the site topography to preserve ridgeline views. The project would be consistent with applicable measures in the County's Hillside Design Guidelines.
Policy LU 4.2. Require contour grading in hillside areas (areas above 25% slope) to mimic the appearance of a natural hillside, unless it has a negative impact on slope stability or drainage.	Yes	The project is designed to minimize grading and impacts to the site, to preserve existing terrain and vegetation communities. The proposed buildings would be nestled into the hillsides and blend with the site topography to preserve ridgeline views. The project would be consistent with applicable measures in the County's Hillside Design Guidelines. The exact amount of grading has not yet been determined for the project. However, grading and ground disturbance activities would be carried out in a manner that minimizes negative impacts on slope stability and site drainage.
Policy LU 4.3. Locate new structures off the top of a ridgeline, when determined by the reviewing agency to be possible, to preserve undeveloped ridges.	Yes	The project is designed to minimize grading and impacts to the site, to preserve existing terrain and vegetation communities. The proposed buildings would be nestled into the hillsides and blend with the site topography to preserve ridgeline views. The project would be consistent with applicable measures in the County's Hillside Design Guidelines. The proposed landscape plan entails the planting of over 300 trees on the project site, most of which would be placed along the northern edge of the project site to ensure the growth of a full tree-lined canopy and further limit visibility of the Monastery buildings.
Policy LU 4.4. Encourage architectural styles and design that are compatible with the natural landscape in hillside areas.	Yes	The project would be consistent with applicable measures in the County's Hillside Design Guidelines. The proposed Monastery buildings would be situated along existing hillsides and designed to be visually compatible with the nearby Temple, while at the same time providing for an independent identity. The building palate was chosen in line with Buddhist beliefs, and would include locally sourced, fire resistant materials. The building massing would be scaled down to be consistent with the residential uses to the north. The smaller buildings to the west

Policies	Consistent?	Analysis
		of the project site would be broken down into smaller building blocks to minimize the grading footprint and provide the maximum amount of undisturbed open space required by the County's Hillside Grading Ordinance.
Policy LU 5.2. Restrict the intensity of development in areas with hazards, including landslide, high fire hazard, seismic, flood and liquefaction areas.	Yes	The project site is in an area with the potential for landslides, wildfires, and earthquakes. These hazard potentials are discussed in Section 7, *Geology and Soils,* Section 9, *Hazards and Hazardous Materials,* and Section 20, *Wildfire* of this Initial Study, and will be further analyzed in the forthcoming EIR. The proposed project would intensify land uses on the project site, which is mostly undeveloped. The programed square footage for the project is divided into 17 buildings, which are small to medium in scale and massing. The provision of multiple buildings of smaller massing permit the project to place the buildings within existing hillsides and topography, and reduce the amount of overall grading required to accommodate the project.
Open Space and Recreation		
Policy OS 1.2. Improve connections between trails and local parks and consider new trailheads if there is no adverse conflict with open space management, safety and biological issues.	Yes	The project would provide a realigned multi-use trail for public use, accessible from South Hacienda Boulevard, with connections to existing trails in the Arroyo San Miguel trail network. The new trail would run along the southern portion of the project site, and preserve existing vegetation communities.
Policy OS 2.3. Offer free or minimal-cost educational and cultural opportunities to all segments of the community to enhance public interest in arts, music, culture, and public health.	Yes	The proposed Monastery would serve Hacienda Heights and surrounding communities with educational and cultural opportunities aimed at bridging eastern and western cultures, teaching and practicing meditation, and the enhancement of each visitor's well-being.
Conservation		
Policy C 1.4. Site structures to minimize the extent of fuel modification zones and degradation of locally-indigenous vegetation.	Yes	The project is designed to minimize grading and impacts to the site, to preserve existing terrain and vegetation communities. The proposed buildings would be nestled into the hillsides and blend with the site topography to preserve ridgeline views. The project would be consistent with applicable measures in the County's Hillside Design Guidelines. The project site is in a Very High Fire Hazard Severity Zone, and a fuel modification plan would be completed for the project pursuant to County Municipal Code Title 32, Section 4908.1.
Policy C 2.1. Ensure continuity of wildlife corridors and wildlife access corridors.	Yes	The project site plans indicate the provision of a multi-use trail for public recreational use along the southern portion of the project site. The existing plant communities in the southern portion of the project site would be preserved and enhanced as part of the project, and ensure maintenance of open space and wildlife corridors on-site. This is discussed in Section 4, *Biological Resources* of this Initial Study, and will be further analyzed in the forthcoming EIR.

Policies	Consistent?	Analysis
Policy C 4.5. require the use of sustainable environmentally-friendly paving materials on new exercise walking paths.	Yes	The project site plans indicate the use of light-colored paving materials for the proposed nature trail and pathways that would connect the Monastery buildings.
Public Health and Safety		
Policy PH 4.3. Minimize risk of fire through fuel modification and other measures, including regular tree thinning and, when necessary, removal.	Yes	Pursuant to County Municipal Code title 32, Section 4908.1, the project would include a fuel modification plan prior to issuance of occupancy permits. The fuel modification plan has yet to be developed, but would include measures that outline appropriate and proactive maintenance of the vegetation communities on the project site in a manner conducive to reducing wildfire risks.

The two northern project parcels and the eastern portion of the large vacant parcel (APN 8240-036-021) have a zoning designation of Light Agriculture (A-1-1). The western portion of the large vacant parcel has a zoning designation of Heavy Agriculture (A-2-1) (Los Angeles County DRP 2019). The proposed monastery use is allowed for the project site with a conditional use permit (CUP) per County Code Title 22, Sections 22.24.100 and 22.24.150.

The 17 new buildings would range in height from 32 feet tall for the meditation halls to 51 feet tall for the multifunction halls. Project site plans indicate most buildings would be terraced into the hillsides to preserve the ridgelines and topography. Pursuant to County Code Section 22.16.050, building heights for the proposed project in the A-1-1 and A-2-1 zones are governed by the standard of a Floor Area Ratio (FAR) no more than 13 times the buildable area. The FAR for the proposed project is within this requirement as it is well below 1.0. The project site plans show consistency with the County's yard requirements for A-1-1 and A-2-1 zones (County Code Section 22.16.050). The project site is in the County's Hillside Management Area. The project would be consistent with all applicable measures of the County's Hillside Design Guidelines to ensure the project complements the hillside terrain and preserves existing views. Therefore, the project would not conflict with any existing land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect. The project would have a **less than significant impact**, and further analysis in the forthcoming EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

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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?	☐	☐	☐	■

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?

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?

The project site is not identified as a mineral resource area or zone on the Department of Conservation Mineral Land Classification Map (2015) or Figure 9-6, *Mineral Resources*, of the Los Angeles County General Plan 2035 (Los Angeles County DRP 2015a). There are no known mineral resources on the project site, and the project would not result in the loss of availability of valuable mineral resources based on the proposed monastery uses. Therefore, the project would have **no impact** and further discussion in the forthcoming EIR is not warranted.

NO IMPACT

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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 County General Plan or noise ordinance (Los Angeles County Code, Title 12, Chapter 12.08), or applicable standards of other agencies?	■	□	□	□
b. Generation of excessive groundborne vibration or groundborne noise levels?	□	□	■	□
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	□	□	□	■

Rincon Consultants, Inc. prepared the project-specific Noise Study, which is summarized here and included as Appendix F.

Noise is defined as sound that is loud, unpleasant, unexpected, or undesired and may therefore be classified as a more specific group of sounds. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and, in the extreme, hearing impairment (Caltrans 2013). Noise levels are commonly measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound pressure levels to be consistent with that of human hearing response, which is most sensitive to frequencies around 4,000 Hertz and less sensitive to frequencies around and below 100 Hertz (Kinsler, et. al. 1999). Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. Thus, a doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; a halving of the energy would result in a 3 dB decrease (Crocker 2007).

Human perception of noise has no simple correlation with sound energy. The perception of sound is not linear in terms of dBA or in terms of sound energy. Two sources do not “sound twice as loud” as one source. It is widely accepted that the average healthy ear can barely perceive changes of 3 dBA, increase or decrease (i.e., 2x the sound energy); that a change of 5 dBA is readily perceptible (8x the sound energy); and that an increase (decrease) of 10 dBA sounds twice (half) as loud (10.5x the sound energy) (Crocker 2007).

Sound changes both in level and frequency spectrum as it travels from the source to the receiver. The most obvious change is the decrease in level as the distance from the source increases. The way noise reduces with distance depends on the important factors, including the type of sources, i.e., point or line, the path the sound will travel, site conditions and obstructions. Noise levels from a point source typically attenuate, or drop off, at a rate of 6 dBA per doubling of distance (6dBA/DD) (e.g., construction, industrial machinery, ventilation units, etc.). Noise from a line source (e.g., roadway, pipeline, railroad, etc.) typically attenuates at about 3 dBA per doubling of distance (Caltrans 2013). The propagation of noise is also affected by the intervening ground, known as ground absorption. A hard site (such as parking lots or smooth bodies of water) receives no additional ground attenuation, and the changes in noise levels with distance (drop-off rate) are simply the geometric spreading of the source. A soft site (such as soft dirt, grass, or scattered bushes and trees) receives an additional ground attenuation value of 1.5 dBA per doubling of distance (Caltrans 2013). Noise levels may also be reduced by intervening structures; the amount of attenuation provided by this “shielding” depends on the size of the object and the frequencies of the noise levels. Natural terrain features such as hills and dense woods, as well as man-made features such as buildings and walls, can significantly alter noise levels. Generally, any large structure blocking the line of sight will provide at least a 5-dBA reduction in source noise levels at the receiver (FHWA 2011).

Structures also can substantially reduce exposure to noise. Based on the Federal Highway Administration’s (FHWA) modern building construction generally provides an exterior-to-interior noise level reduction of 20-35 dBA with closed windows (FHWA 2011).

The impact of noise is not a function of loudness alone. The time of day when noise occurs, and the duration of the noise, are also important. In addition, most noise that lasts for more than a few seconds is variable in its intensity. Consequently, a variety of noise descriptors has been developed. One of the most frequently used noise metrics that considers both duration and sound power level is the equivalent noise level (Leq). The Leq is defined as the single steady A-weighted level that is equivalent to the same amount of energy as that contained in the actual fluctuating levels over a period of time (Typically, Leq is summed over a one-hour period. Lmax is the highest RMS (root mean squared) sound pressure level within the sampling period, and Lmin is the lowest RMS sound pressure level within the measuring period (Crocker 2007).

Since noise that occurs at night tends to be more disturbing than that which occurs during the day. Community noise is usually measured using Day-Night Average Level (DNL), which is the 24-hour average noise level with a +10 dBA penalty for noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours, or Community Noise Equivalent Level (CNEL), which is the 24-hour average noise level with a +5 dBA penalty for noise occurring from 7:00 p.m. to 10:00 p.m. and a +10 dBA penalty for noise occurring from 10:00 p.m. to 7:00 a.m. (Caltrans 2013). Noise levels described by DNL and CNEL usually differ by about 1 dBA. The relationship between the peak hour Leq value and the Ldn/CNEL depends on the distribution of traffic during the daytime, evening, and nighttime. Quiet suburban areas typically have CNEL noise levels in the range of 40 to 50 dBA, while areas near arterial streets are in the 50 to 60+ CNEL range. Normal conversational levels are in the 60 to 65-dBA Leq range, and ambient noise levels greater than 65 dBA Leq can interrupt conversations (FTA 2018).

The County maintains the health and welfare of its residents with respect to noise through abatement ordinances and land use planning. The County’s General Plan 2035 Noise Element and the Hacienda Heights Community Plan include goals and policies with the intent to reduce excessive noise impacts. Policies applicable to the project are shown in Table 19.

Table 19 County General Plan and Hacienda Heights Community Plan Goals and Policies Related to Noise

General Plan	
Goal N1: The reduction of excessive noise impacts	
Topic	**Policy**
Reducing Noise Impacts	**Policy N 1.2**: Reduce exposure to noise impacts by promoting land use compatibility.
	Policy N 1.5: Ensure compliance with the jurisdictions of State Noise Insulation Standards (Title 24, California Code of Regulations and Chapter 35 of the Uniform Building Code), such as noise insulation of new multifamily dwellings constructed within the 60 dB (CNEL or Ldn) noise exposure contours.
	Policy N 1.10: Orient residential units away from major noise sources (in conjunction with applicable building codes).
Hacienda Heights Community Plan	
Conservation Goal C-2: Wildlife that is respected and protected	
Topic	**Policy**
Reducing Noise Impacts	**Policy C.2.3**: Screen Significant Ecological Areas from direct and spillover lighting and noise from adjoining uses.
Public Health and Safety Goal PH-1: A community free of nuisance-causing noise	
Topic	**Policy**
Reducing Noise Impacts	**Policy PH-1.1:** Encourage the use of walls, earth berms, landscaping, setbacks, or a combination of these strategies, to mitigate noise-related disturbances.
	Policy PH-1.2: Locate sensitive receptors including schools, hospitals, and convalescent homes in areas sufficiently removed from high noise generators.

Source: County of Los Angeles 2015

County of Los Angeles Code of Ordinances

County Code Chapter 12.08, *Noise Control*, seeks to control unnecessary, excessive and annoying noise and vibration.

County Code Section 12.08.390 includes exterior noise standards shown in Table 20.

Table 20 Exterior Noise Standards

Noise Zone	Designated Noise Zone Land Use (Receptor Property)	Time Interval	Exterior Noise Level (dBA Leq)
I	Noise sensitive area	Anytime	45
II	Residential properties	10:00 p.m. to 7:00 a.m. (nighttime)	45
		7:00 a.m. to 10:00 p.m. (daytime)	50
III	Commercial properties	10:00 p.m. to 7:00 p.m. (nighttime)	55
		7:00 a.m. to 10:00 p.m. (daytime)	60

Source: County of Los Angeles 2018, County Code Section 12.08.390.

County Code Section 12.08.400 outlines interior noise, which only applies to multifamily residences. The proposed dormitories would be similar in use to multifamily residences. The allowable interior noise level between 10:00 p.m. to 7:00 a.m. is 40 dBA Leq, and 45 dBA Leq between 7:00 a.m. to 10:00 p.m.

County Code Section 12.08.440 prohibits the operation of any tools or equipment used in construction, drilling, repair, alteration or demolition work between weekday hours of 7:00 p.m. and 7:00 a.m., or any time on Sundays or holidays such that the sound creates a noise disturbance across a residential or commercial real-property line, except for emergency work by public service utilities or by variance issued by the health officer. The maximum noise levels for nonscheduled, intermittent, short-term operation (less than 10 days) of mobile equipment during construction activities are shown in Table 21.

Table 21 Maximum Noise Levels for Short-Term Mobile Equipment Noise

	Single-family Residential (Leq) (dBA)	Multi-family Residential (Leq) (dBA)	Semi-residential/ Commercial (Leq) (dBA)
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	75	80	85
Daily, 8:00 p.m. to 7:00 a.m. and all day Sunday and legal holidays	60	64	70

Source: County of Los Angeles 2018, County Code Section 12.08.440

Maximum noise levels for repetitively scheduled and relatively long-term operation (periods of 10 days or more) for stationary equipment during construction are shown in Table 22.

Table 22 Maximum Noise Levels for Stationary Equipment Noise

	Single-family Residential (Leq) (dBA)	Multi-family Residential (Leq) (dBA)	Semi-residential/ Commercial (Leq) (dBA)
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	60	65	70
Daily, 8:00 p.m. to 7:00 a.m. and all day Sunday and legal holidays	50	55	60

Source: County of Los Angeles 2018, County Code Section 12.08.440

County Code Section 12.08.440(C) also states that all mobile or stationary internal-combustion-engine powered equipment or machinery shall be equipped with suitable exhaust and air-intake silencers in proper working order.

County Code Section 12.08.480 establishes a noise standard of 95 dBA for amplified public entertainment and events. Such events include, but are not limited to, the operation, playing, or permitting the operation or playing of any radio, television, phonograph, drum, musical instrument, sound amplifier or similar device.

County Code Section 12.08.560 establishes a construction and operational vibration perception threshold of 0.01 inches per section (in/sec) over the range of 1 to 100 Hertz, which is approximately 68 VdB.

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?

The most common source of noise in the project site vicinity is vehicular traffic on South Hacienda Boulevard. Ambient noise levels are generally highest during the daytime and rush hour unless congestion substantially slows speeds.

To characterize ambient sound levels at and near the project site, two 15-minute sound level measurements were conducted on November 1, 2018, during the evening peak hour between 4:45 p.m. and 5:26 p.m. In addition, a one one-hour sound level measurement was collected on November 25, 2018 between 1:00 p.m. and 2:00 p.m., during an event at the Hsi Lai Temple (3456 Glenmark Drive). An Extech, Model 407780A, ANSI Type 2 integrating sound level meter was used to conduct the measurements.

Noise Measurement (NM) 1 was taken in the middle of the project site and represents the existing ambient noise levels due to existing traffic and activities in the surrounding neighborhood. NM 2 was taken northeast of the project site, along South Hacienda Boulevard, to capture existing traffic noise and vehicle classification mix (e.g. automobile, medium trucks, and heavy trucks). NM 3 was taken on Glencove Drive during an event. The measurement was taken approximately 480 feet east of the center courtyard of the existing Hsi Lai Temple to provide a reference noise level for events proposed by the project. This is a conservative reference level as events for the project would be smaller than events that currently occur at the Hsi Lai Temple (Rincon Consultants, Inc. 2019g). Table 23 summarizes the results of the noise measurements. Detailed sound level measurement data is included with the Noise Study in Appendix F.

Table 23 Project Vicinity Sound Level Monitoring Results

Measurement Location	Measurement Location	Sample Date & Times	Approximate Distance to Primary Noise Source	Leq (dBA)[1]	Lmin (dBA)	Lmax (dBA)
1	Middle of the project site	11/1/2019 4:45 - 5:00 p.m.	1,100 feet to centerline of South Hacienda Blvd.	50	42	67
2	Along South Hacienda Blvd. northeast of project site	11/1/2018 5:11 – 5:26 p.m.	50 feet to centerline of South Hacienda Blvd.	76	54	91
3	East of project site and existing Hsi Lai Temple, on Glencove Drive	11/25/2019 1:00 – 2:00 p.m.	35 feet to centerline of Glencove Drive	51	35	71

[1] The equivalent noise level (Leq) is defined as the single steady A-weighted level that is equivalent to the same amount of energy as that contained in the actual fluctuating levels over a period of time (essentially, the average noise level). For measurements taken at NM1 and NM2, the Leq was over a 15-minute period (Leq[15]).

Source: Rincon Consultants, Inc. 2019, Appendix F

Ground-floor noise contours from traffic on roadways near the project site were modeled based on the above sound level measurements. Modeled noise contours are shown in the Noise Study (see Figure 6 of Appendix F) and noise levels at the façade of proposed Building A are included in Table 24. Traffic noise from South Hacienda Boulevard would result in noise levels up to 63 CNEL at the façade of proposed Buildings A and B. This is considered a compatible noise level for the proposed uses in Buildings A and B (Rincon Consultants, Inc. 2019g). All other buildings would be exposed to noise levels of 60 CNEL or less. (Sound Plan data is included as an appendix to the Noise Study in Appendix F.)

Table 24 Traffic Noise Levels

		Noise Level (CNEL)	
Receiver	Description	1st Floor	2nd Floor
1	Northeastern Façade	59	61
2	Eastern Façade	61	63
3	Eastern Façade	61	63
4	Eastern Façade	59	61
5	Eastern Façade	63	63

Source: Rincon Consultants, Inc. 2019, Appendix F

As shown, all residential and recreational uses on-site would be exposed to exterior noise levels of less than 65 CNEL. Impacts associated with noise and land use compatibility would be less than significant.

Standard construction techniques required under the California Building Code typically achieve a minimum 25-dBA reduction from exterior sources at interior locations, when the windows are in a closed position. Thus, with exterior noise levels of 59-63 CNEL interior noise levels for the project would not exceed the State and County's interior noise standard of 45 CNEL. Therefore, interior noise impacts would be **less than significant**, and further analysis in the forthcoming EIR is not warranted.

On-site Operational Noise

The proposed buildings and uses would intensify the project site compared to the existing conditions. Existing land uses near the project site may periodically be subject to noise associated with operation of the project, which include events that would occur at the proposed Monastery. The proposed Monastery would host educational programs and occasional smaller events coinciding with the existing Hsi Lai Temple events. The dining facilities, classrooms, offices, and meditation halls would be operational year-round and may host up to 150 people for cultural/community events. Some of the dormitory-style facilities may also be used for overnight guests.

Noise sources associated with operation of the proposed Monastery would include people gathering and speaking on terraces; organized meditation with speaking events at the main plaza seating area and amphitheater; occasional events that would host up to 400 people on the project site; on-site vehicular movement including delivery trucks for food and supplies; and HVAC equipment for the proposed buildings.

For modeling on-site noise sources, assumptions for stationary equipment, such as the rooftop HVAC systems were included. As a worst-case daytime (7:00 a.m. to 10:00 p.m.) scenario, all HVAC were modeled operating at 100 percent, with activities on all terraces facing nearby properties, and an amplified sound system located at the stage of the amphitheater. For assessing nighttime noise levels (10:00 p.m. to 7:00 a.m.), it was assumed all HVAC would be operating but that events would not occur during this period. Therefore, no activities or events were assumed to take place on the terraces, in the plaza, or in the amphitheater after 10:00 p.m.

On-site operational noise level contours are provided in Figure 7and Figure 8 of the Noise Study (Appendix F) for daytime and nighttime, respectively. Noise levels at receivers located along the northern property lines are shown in Table 25. Noise levels during daytime activities with all potential sources active during the same hour would not exceed the County property-line noise level limits of 50 dBA L_{eq}. Similarly, the more limited nighttime activities would also comply with the lower 40 dBA L_{eq}. Therefore, the impact of future on-site noise sources would be **less than significant,** and further analysis in the forthcoming EIR is not warranted.

Table 25 On-site Noise Source Model Summary

Receiver	Address	Daytime (All Sources)	Nighttime (HVAC Only)
1	15700 Gun Tree Drive	20	18
2	15706 Gun Tree Drive	20	15
3	15712 Gun Tree Drive	23	14
4	15720 Gun Tree Drive	40	22
5	15726 Gun Tree Drive	38	15
6	15736 Gun Tree Drive	43	24
7	15746 Gun Tree Drive	34	25
8	15748 Gun Tree Drive	32	22
9	15745 Gun Tree Drive	34	23
10	15760 Gun Tree Drive	42	29
11	15762 Gun Tree Drive	43	24

Source: Rincon Consultants, Inc. 2019, Appendix F

Off-site Traffic Noise

The project would generate new vehicle trips that would use roadways. Based on the preliminary trip generation projections (included as Appendix H and further discussed in Section 17, *Transportation*), the project would generate a maximum of 706 daily trips. Traffic noise was modeled using the FHWA's Traffic Noise Model for existing and existing plus project ADT volumes on South Hacienda Boulevard. Table 26 summarizes the traffic noise modeling results. As shown, existing noise level would increase by approximately 1.4 dBA, which would not exceed the 3 dBA criteria for off-site traffic noise impacts. Therefore, the project would not result in a substantial permanent increase in ambient noise levels above levels existing without the project. Impacts would be **less than significant**, and further analysis in the forthcoming EIR is not warranted.

Table 26 Comparison of Existing and Estimated Traffic Volumes and Noise

	Roadway Noise (dBA Ldn)				
Modeled Location	Existing	Existing + Project	Noise Level Increase	Noise Increase Criteria (dBA)	Exceed Criteria?
South Hacienda Boulevard	70.0	71.4	1.4	3	No

Source: Rincon Consultants, Inc. 2019, Appendix F

Construction Noise

Nearest receivers include single-family residences adjacent to the north, single-family residences 200 feet northeast of the project site, and the Hsi Lai Temple across South Hacienda Boulevard. While the project site is adjacent to existing residential properties to the north, construction equipment would be continuously moving across the site coming near and then moving further away from individual receivers, due to the dynamic nature of construction maximum hourly noise levels are calculated from the center of the site. The residential receivers north of the project site would be as near as 100 feet and as far as 500 feet; this would result in an average distance of 300 feet from construction activity. It is a similar distance to the Hsi Lai Temple. The residential receivers located to the northeast of the project site were analyzed at 500 feet from the center of construction activity.

The FHWA's Roadway Construction Noise Model (RCNM) was used to calculate noise associated with construction equipment maximum hourly noise levels are calculated to be 83 Leq at 50 feet, as measured from the center of the construction site or activity. At 300 feet from these activities, i.e., the northern property line, noise levels would attenuate to approximately 67 dBA Leq, and at the residences across South Hacienda Boulevard maximum hourly noise levels would attenuate to 63 dBA Leq or less. RCNM Calculations are included in the Noise Study (Appendix F). Construction noise would exceed the County's maximum hourly limit of 60 dBA Leq at single-family residential uses the, and thus the project would require noise abatement measures. Therefore, project construction noise impacts are **potentially significant**, and further discussion in the forthcoming EIR is warranted.

POTENTIALLY SIGNIFICANT IMPACT

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

Certain types of construction equipment can generate high levels of groundborne vibration. Construction of the proposed Monastery would utilize vibration-generating equipment including dozers and rollers during most construction phases. As shown in Table 27, groundborne vibration from construction equipment would not exceed the County's threshold of 0.01 in./sec. PPV (68 VdB), at distances of 175 feet, which is the closest distance between on-site construction equipment and the nearest structure with sensitive receivers (the single-family residence at 15760 Gun Tree Drive). All other structures associated with vibration sensitive receivers are at greater distances. Vibration from construction activities would only occur during the daytime as construction activities are prohibited between the hours of 7:00 p.m. and 7:00 a.m. per County Municipal Code Section 12.08.440.

Table 27 Vibration Levels at Sensitive Receptors

Equipment	VdB at 175 feet	In/sec PPV at 175 feet
Bulldozer (large)	68	0.010
Loaded trucks	64	0.009
Los Angeles County Threshold	**68**	**0.010**
Threshold Exceeded?	**No**	**No**

Source: Rincon Consultants, Inc. 2019, Appendix F.

As demonstrated, construction of the proposed Monastery would not generate significant groundborne vibrations from heavy equipment operations. Therefore, construction-related vibration impacts would be **less than significant**, and further analysis in the forthcoming EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

c. *For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?*

The project site is not located in any airport land use plan area or within two miles of a public airport. The nearest airport is the Fullerton Municipal Airport (4011 W. Commonwealth Avenue) in the city of Fullerton, approximately 9 miles south of the project site in Orange County. The project site is outside of the airport's influence area (Orange County 2004). Therefore, the project would have **no impact**, and further analysis in the forthcoming EIR is not warranted.

NO IMPACT

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 (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	■	☐
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	■

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)?

The project entails construction of 17 new buildings concentrated on the northern portion of the site with a combined total of 131,034 square feet. Eight of the 17 proposed buildings would be used as dormitories, totaling 37,948 square feet. Two of the eight dormitory buildings would be constructed in the Building G style (7,704 square feet each; 15,408 square feet total), and provide accommodations for a maximum of 32 Monastery guests. The remaining dormitory buildings would be constructed in the Buildings H and I (22,540 square feet total), and provide temporary to long-term living accommodations for a maximum of 36 senior monastics who are visiting the proposed Monastery for higher levels of meditation study. In addition to the 17 proposed buildings, the existing 5,318-square foot single-family residence at 3357 Lotus Drive would be renovated into a volunteers' dormitory to accommodate up to 14 volunteers. Beyond the potential for 36 long-term visitors, the project would not cause a permanent increase in population. Therefore, the project would not cause a direct substantial unplanned population growth in the area.

The proposed Monastery would have approximately six employees each day, overseeing the maintenance of the proposed facilities and Monastery programs and accommodating the needs of visiting senior monastics. The unincorporated portion of Los Angeles County had 222,900 employees in 2012 and forecast of 288,400 employees by 2040 (SCAG 2016). The six employees at the proposed Monastery would account for less than one percent of the anticipated employed population for unincorporated Los Angeles County in 2040. The project would draw upon employees from the Hacienda Heights neighborhood and vicinity and would likely be an extension of staff from the existing Hsi Lai Temple. Therefore, the project would not cause a direct substantial unplanned growth in employment for the project area.

Furthermore, the project utilities would be connected to existing infrastructures and no roads would be extended in a way that would indirectly increase population growth. Therefore, the project would have a **less than significant impact**, and further analysis in the forthcoming EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

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

The project site consists of three parcels, of which two are vacant (Assessor's Parcel Numbers 8240-036-021 and 8291-035-020) and one that is developed with a single-family residence (APN 8291-035-021; 3357 Lotus Drive). Implementation of the project would not displace any existing housing or residents since the existing single-family residence is currently unoccupied. Furthermore, the residence would be renovated into a volunteers' dormitory, providing a continued, albeit temporary, housing option. The renovation and reuse of the single-family residence as a volunteers' dormitory would not require the construction of replacement housing in the Hacienda Heights community. The project would increase the number of available temporary accommodations for the proposed Monastery uses. Therefore, the project would have **no impact**, and further analysis in the forthcoming EIR is not warranted.

NO IMPACT

15 Public Services

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the 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:				
1 Fire protection?	■	□	□	□
2 Police protection?	■	□	□	□
3 Schools?	□	□	□	■
4 Parks?	□	□	■	□
5 Other public facilities?	□	□	■	□

a.1. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities, or the need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

The Los Angeles County Fire Department (LACoFD) provides fire protection services to the Hacienda Heights neighborhood and project site. The closest fire station, Station 91, is located at 2691 Turnbull Canyon Road, approximately 2.5 miles north of the project site. LACoFD aims to maintain a standard response time of five minutes or less for calls received from urban areas and 8 minutes or less for suburban areas (Los Angeles County DRP 2014). The project site is in a residential neighborhood that is currently protected by LACoFD.

The proposed Monastery would consist of 17 new buildings situated along the northern portion of the site and accessible via a private access driveway, and the renovation of an existing single-family residence for use as a volunteers' dormitory. All project buildings suited for over-night use would be visitor-serving only for Monastery guests and volunteers. Implementation of the proposed Monastery would not contribute to an increase in population that requires an increase fire protection services beyond acceptable service ratios and response times.

The proposed buildings would be constructed pursuant to the 2016 California Fire Code as adopted and amended by the County, and implement applicable measures outlined in County Code Title 32 *Fire Code*. The project plans would be subject to review and approval by the LACoFD, and applicable fees would be collected as a condition of approval by the LACoFD pursuant to County Code Title 32 Section 328 *Land Development and Environmental Review Fees*. All proposed buildings would be subject to inspection and approval by the LACoFD prior to occupancy.

The project would cause an incremental increase in the need for fire protection services in an area already served by the LACoFD, but would not create the need for new or altered fire services. Therefore, the project would have a **less than significant impact** on the demand for fire department facilities and services, and further analysis in the forthcoming EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

a.2. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered police protection facilities, or the need for new or physically altered police protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

The City of Industry's Sheriff's Station, which is a part of the Los Angeles Sheriff's Department (LASD) serves the City of Industry, City of La Puente, City of La Habra Heights, and unincorporated areas of Valinda, Bassett, North Whittier, and Hacienda Heights. The station is located at 150 North Hudson Avenue in the City of Industry, approximately 3.7 miles north of the project site. The greatest amount of need and growth for LASD services were identified as being in the Santa Clarita Valley and Antelope Valley Planning Areas, where 82 percent of future housing units in the County would be placed (Los Angeles County DRP 2014). The project site is not located in either of these planning areas.

The proposed Monastery would increase the area population semi-permanently by approximately 36 long-term residents. Implementation of the proposed Monastery would not contribute to an increase in population that requires increased police protection services beyond acceptable service ratios and response times. However, the Monastery would host special cultural events, programs, and classes every year that result in a greater number of Monastery visitors than compared to normal operations. Special events and celebrations would have a maximum of 400 people attending and would occur two to three times per year during a single day or evening. Various cultural exchange programs would be offered at the proposed Monastery throughout the year, and attendance would not exceed 150 participants during each program. Meditation classes would be held on monthly and quarterly basis for small groups of ten to 30 participants per class. The proposed Monastery would also have dormitory buildings to provide temporary accommodations for a maximum of 32 guests who are attending meditation retreats at the proposed Monastery, and a renovated single-family residence for use as volunteers' dormitory to accommodate up to 14 volunteers.

The proposed Monastery would cause an incremental increase in the need for police protection services in an area already served by the LASD and may create the need for new or altered police services. Due to the nature of the proposed project and the occasional large event programs scheduled throughout the year, the Monastery would be required to inform LASD of the schedules for large event programs ahead of time and provide traffic control as needed. This would be included as a standard condition of approval for the project. Additional mitigation may be required to address potential impacts to police services and/or facilities. Therefore, the project would have a **potentially significant impact**, and further analysis in the forthcoming EIR is warranted.

POTENTIALLY SIGNIFICANT IMPACT

a.3. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered schools, or the need for new or physically altered schools, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives?

The proposed Monastery would intensify land uses at the site through the provision of 17 new buildings, which would be used as meditation halls, classrooms, dormitories for visiting monastics, and the renovation of an existing single-family residence for use as volunteers' dormitory. The proposed Monastery would not generate new students for the Hacienda La Puente Unified School District (HLPUSD), which provides public school services to the project site. Although the proposed Monastery would not increase the number of school attendees, the project applicant would be required to pay applicable developer fees prior to the issuance of building permits, pursuant to County Municipal Code Chapter 4.52 *Interim School Facilities' Financing*. Therefore, the project would have **no impact**, and further analysis in the forthcoming EIR is not warranted.

NO IMPACT

a.4. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered parks, or the need for new or physically altered parks, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives?

Parks and recreation facilities are addressed in Section 16, *Recreation*, of this Initial Study. The project would not result in a substantial, permanent increase in population. The monastery site would include private, outdoor recreational opportunities by way of its multiple outdoor pathways, seating areas, and gazebos. Therefore, the project would not result in a permanent, substantially increase in the use of existing neighborhood and regional parks or other recreational facilities. Though monastery visitors are primarily expected to stay on the premises for the duration of their stays, special retreat events may result in a temporary increase in secondary use of area parks and recreational facilities. No significant increase in use of parks or recreational facilities by short-term monastery visitors is anticipated. Therefore, the project would have **a less than significant impact**, and further analysis in the forthcoming EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

a.5. Would the project result in substantial adverse physical impacts associated with the provision of other new or physically altered public facilities, or the need for other new or physically altered public facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

The Hacienda Heights Library, located at 16010 La Monde Street, is approximately 1.7 miles north of the project site. The Hacienda Heights Library is part of the County of Los Angeles Public Library system, which is financed by property taxes from the service area, general county funds, parcel tax, grants, feeds, and funds raised by the Library Foundation (Los Angeles County 2019b). As a result, the project would contribute to the financing of library services through property taxes, which would mitigate the need for new or physically altered government facilities that support library use. Furthermore, the proposed Monastery would not result in a substantial permanent increase in population. Therefore, the project would have **no impact**, and further analysis in the forthcoming EIR is not warranted.

The proposed project would contribute incrementally to impacts to County public services and facilities, such as public parks (discussed above in this section, and in Section 16, *Recreation*), solid waste disposal (discussed in Section 19, *Utilities and Service Systems*), and water usage and wastewater disposal (discussed in Section 19, *Utilities and Service Systems*). The project's contribution would be offset through payment of fees that are used to fund storm drain improvement, for example, as well as by project-specific features described in the individual resource section analyses described in this Initial Study. Therefore, the project's contribution, considering existing capacities and assuming compliance with existing ordinances, would have a **less than significant impact**, and further analysis in the forthcoming EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

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?	■	□	□	□

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?

As discussed in Section 14, *Population and Housing*, the project would not result in substantial population growth, directly or indirectly. The monastery site would include private, outdoor recreational opportunities by way of its multiple outdoor pathways, seating areas, and gazebos. Therefore, the project would not result in a permanent, substantially increase in the use of existing neighborhood and regional parks or other recreational facilities. Though monastery visitors are primarily expected to stay on the premises for the duration of their stays, special retreat events may result in a temporary increase in secondary use of area parks and recreational facilities. No significant increase in use of parks or recreational facilities by short-term monastery visitors is anticipated. Therefore, the project would have **a less than significant impact**, and further analysis in the forthcoming EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

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?

The project site is adjacent to an open space reserve that has existing trails connecting to the Arroyo San Miguel open space and trailheads to the west in the City of Whittier. The existing site access way is used as a County-maintained multi-use (hiking, biking, and equestrian) public nature trail, and is publicly accessible from South Hacienda Boulevard. As part of project design, a new private driveway would be established to provide vehicular circulation and access to proposed buildings. Off-site access for fire and utility agencies would continue to be provided through the private monastery property along the existing access way as shown in Figure 3. A new public nature trail would be constructed along the southeasterly portion of the project site and connect to the Arroyo San Miguel trail network off-site. The trail head would be equipped with four parking spaces available to trail users. The realignment of the multi-use trail would ensure continued public access to existing trail networks. The project applicant has consulted with County Department of Parks &

Recreation staff to ensure the improved trail would be designed and constructed according to County standards.

Proposed site plans also indicate two pedestrian pathways connected to the western portion of the existing off-site access way, leading to proposed Building H1 located in the southwestern portion of the site and the proposed access driveway southwest of Building D3. The project site plan includes several meandering pedestrian pathways and elevated walkways between proposed buildings on the northern portion of the site, which would be used by Monastery visitors.

The applicant's development of the new multi-use trail would enhance recreational opportunities for the public, resulting in an overall community benefit from a recreational standpoint. However, the establishment of the trail along the southeasterly portion of the property could result in potential impacts to the existing oak woodland habitat and a drainage feature as described in Section 4 *Biological Resources*. Therefore, the construction and future public use of the new trail may have a **potentially significant** adverse physical effect on the environment, and further analysis in the forthcoming EIR is warranted.

POTENTIALLY SIGNIFICANT IMPACT

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 use (e.g., farm equipment)?	☐	☐	■	☐
d. Result in inadequate emergency access?	■	☐	☐	☐

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

The project would not conflict with adopted policies, plans, or programs regarding public transit, pedestrian facilities, the County's 2012 Bicycle Master Plan, or otherwise decrease the performance or safety of such facilities. The project construction activities would occur on the project site and include realignment of the existing east-west access way through the site and the multi-use nature trail along the southern portion of the project site. The bus stop nearest to the project site is located at the intersection of South Hacienda Boulevard and Colima Road, approximately 0.5 mile north of the project site. Implementation of the project would not conflict with access to the existing bus stops or operation of existing bus lines. Therefore, the project would have **no impact**, and further analysis in the forthcoming EIR is not warranted.

NO IMPACT

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

Linscott, Law, and Greenspan Engineers (LLG) will prepare a project traffic impact analysis (TIA). A Memorandum of Understanding for the forthcoming TIA is still under negotiations with the County Department of Public works as of the date of this Initial Study. Traffic impacts resulting from the proposed Monastery have not yet been determined, though preliminary project trip generation has been calculated based on proposed uses. The project is anticipated to generate 448 daily trips during normal operations, which include cultural exchange programs and medication classes, general staff and maintenance operations, and meditation studies for senior monastics. The project is anticipated to generate 706 daily trips during special events, which would be held two to three times per year. The analysis, conclusions, and recommendations from the project TIA will be incorporated into the EIR. Therefore, the project may have **potentially significant impact**s, and further analysis in the forthcoming EIR is warranted.

POTENTIALLY SIGNIFICANT IMPACT

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

The project would include two proposed driveways along South Hacienda Boulevard. The northern driveway would align with Glenmark Drive. A new signal would be installed at the intersection to allow for all access in and out of the project site. The southern driveway would provide a southbound, exit only, onto South Hacienda Boulevard. Current site access is provided by an east-west oriented, primarily unpaved, vehicular road and multi-use (hiking, biking, and equestrian) public trail, which runs through the middle of the project site (locally recognized as Draper Road).. The eastern portion of the existing access way would be realigned as part of the project to provide private access to the proposed buildings and would curve according to existing topography and would not include sharp curves or dangerous intersections. A driveway loop would be located at the west end of the private driveway to provide vehicle access to the proposed dormitories. Off-site access for fire and utility agencies would continue to be provided through the private monastery property along the existing access way as shown in Figure 3. The public trail system would be realigned along the southern portion of the project site.

Therefore, the project would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment) and would have a **less than significant impact.** Further analysis in the forthcoming EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

d. Would the project result in inadequate emergency access?

The project site plans indicate the new private driveway would be a two-way drive that is 28 feet wide at the entrance and driveways by South Hacienda Boulevard and the west end loop. The rest of the access way would be 26 feet in width. These proposed widths are consistent with County Municipal Code Title 32, Section D103.2, and would provide adequate accessibility for fire apparatus and emergency vehicles. Therefore, on-site emergency access would be appropriate and present a less than significant impact.

However, the proposed Project may result in temporary circulation system impacts during construction and would likely generate a significant increase in number of daily trips during occasional special events to be held each year. The project TIA will analyze the **potentially significant impact**s of construction traffic and special event traffic to the local circulation and transportation system, including impacts to emergency access. While project impacts to emergency access are anticipated to be less than significant with the incorporation of traffic management plans for construction and special events, this topic warrants additional analysis in the forthcoming EIR.

POTENTIALLY SIGNIFICANT IMPACT

18 Tribal Cultural Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in a Public Resources Code Section 21074 as either 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:				
a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or	■	☐	☐	☐
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	■	☐	☐	☐

a. Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code Section 21074 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)?

b. Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code Section 21074 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?

Chapter 532, Statutes of 2014 (i.e., Assembly Bill [AB] 52), requires Lead Agencies evaluate a project’s potential to impact “tribal cultural resources.” Such resources include “[s]ites, 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.” AB 52 also gives Lead Agencies the discretion to determine, supported by substantial evidence, whether a resource qualifies as a “tribal cultural resource.” Per AB 52, Native American consultation is required upon request by a California Native American tribe that has previously requested that the County provide it with notice of such projects.

As discussed in Section 5, *Cultural Resources*, there is potential for implementation of the project to disturb tribal cultural resources. AB 52 consultation between the County, as lead agency, and Native American tribes has not yet occurred. Therefore, potential resources that may be exposed during ground disturbance activities could be of importance to Native American tribes. Due to the potential to impact culturally sensitive resources in the area, the project may have a **potentially significant impact**, and further analysis in the forthcoming EIR is warranted.

POTENTIALLY SIGNIFICANT IMPACT

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 storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	□	□	■	□
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	□	□	■	□
c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	□	□	■	□
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	□	□	■	□
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	□	□	□	■

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

The project site is adjacent to a developed residential community and contains connections to storm water drainage, wastewater treatment, electric power, natural gas, and telecommunications infrastructure. Project construction would include connecting to existing infrastructure to provide plumbing, power, and telecommunications services to the proposed buildings. As discussed in Section 10, *Hydrology and Water Quality*, construction activities could temporarily alter the draining pattern on-site due to the handling, storage, and disposal of construction materials containing pollutants; the maintenance and operation of construction equipment; and, grading activities which may generate soil erosion via storm runoff. The project site consists of approximately 29 acres and entails disturbance and development of approximately 19 acres with most of the disturbed area being new impervious area (DAX Consulting 2018). Therefore, the project is subject to the NPDES permit issued by the California Water Resources Control Board (SWRCB), administered by the Los Angeles RWQCB, for storm water discharges from construction sites (Los Angeles County 2014b).

The Preliminary Hydrology/LID Report (still under review by the Department of Public Works) states that, per the County's LID Manual, the project is considered a "Designated Project" since proposed development would disturb over one acre and would add more than 10,000 square feet of impervious surface area. As such, the project would be required to implement post-construction storm water management control measures on-site through infiltration, evapotranspiration, storm water runoff harvest and use, or a combination of the three. The project includes implementation of a rainwater harvest system to retain the storm water quality design volume associated with the project site. The rainwater harvest system would consist of an underground infiltration system that includes pretreatment upstream in the form of a hydrodynamic separator to remove trash and sediment prior to runoff entering the infiltration system. Therefore, the project was determined to be exempt from hydromodification requirements (DAX Consulting 2018). The project would comply with County Code Title 26 Section J110 and prepare a SWPPP prior to issuance of a grading permit.

Furthermore, the proposed Monastery would not result in direct or indirect substantial population growth. The project would not require the relocation or construction of new or expand infrastructures to provide utilities services. Therefore, the project would have a **less than significant impact**, and further analysis in the forthcoming EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

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?

The project entails construction of 17 new buildings that would comprise the Monastery and the renovation of an existing single-family residence to accommodate overnight volunteers. Project operation would incrementally increase demand for potable water. The San Gabriel Valley Water Company (SGVWC) provides water to Hacienda Heights and neighboring communities and would also serve the project site. SGVWC derives its groundwater supplies from groundwater wells that produce water from the San Gabriel Basin (Main Basin) and the Central Basin. SGVWC's served a population of about 257,000 in 2015 and is projected to have a service population of approximately 289,400 by 2020 (SGVWC 2016).

SGVWC provides water to several customer user types, of which institutional users include higher education institutions and schools, churches, and hospitals. Institutional user info is included with commercial users (SGVWC 2016). SGVWC provided 8,477 acre-feet (2,762 million gallons) of potable water for its commercial customers in 2015, and commercial demand is expected to increase to 12,344 acre-feet (4,022 million gallons) by 2040 (SGVWC 2016).

According to SGVWC's 2015 Urban Water Management Plan (UWMP), a single dry or multiple dry year period will not compromise SGVWC's ability to provide a reliable supply of water to its service population (SGVWC 2016). Based on historic rainfall and water demand data, SGVWC is projected to be able to maintain 101 percent of the required average water supply during a single-dry year, 99 percent of supply during first and second multiple-dry years, and 95 percent of supply during the third multiple-dry year (SGVWC 2016). SGVWC is forecast to have the ability and capacity to meet water demands during normal, single dry, and multiple dry years over the next 20 years based on current management practices which have resulted in a stable and reliable water supply (SGVWC 2016).

The proposed Monastery would require approximately 57 acre-feet (18.5 million gallons) of water per year, based on modeling results from CalEEMod (Appendix A). The Monastery's estimated water demand would account for approximately 0.46 percent of projected commercial water demand within the SGVWC service area for 2040. Although some increase in the demand for domestic water may occur as a result of the proposed Monastery, the increase would not be significant, and adequate water supplies and facilities are available to serve the project. Therefore, the project would have a **less than significant impact**, and further analysis in the forthcoming EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

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?*

Wastewater generated within SGVWC's service area is treated by the Sanitation Districts of Los Angeles County (LACSD) at its San Jose Creek Water Reclamation Plant (SJCWRP), Whittier Narrows Water Reclamation Plant (WNWRP), and the Joint Water Pollution Control Plant (JWPCP) (SGVWC 2016). LACSD estimates approximately 80 gallons per person per day of wastewater is generated within LACSD's service area (SGVWC 2016). The estimated amount of wastewater collected within SGVWC's service area was approximately 21 million gallons per day (MGD; approximately 23,000 acre-feet per year), based on the 2015 service population of about 257,000 people (SGVWC 2016).

The SJCWRP has a wastewater treatment capacity of 100 MGD and serves a population of approximately one million people. The WNWRP has a wastewater treatment capacity of 15 MGD and serves a population of approximately 150,000 people. The JWPCP has a wastewater treatment capacity of 300 MGD and has the capacity to serve approximately 3.5 million people (SGVWC 2016).

As discussed in Section 14, *Population and Housing*, the project would have a minimum of six employees who oversee day-to-day operations of the proposed Monastery, provide temporary to long-term living accommodations for a maximum of 36 senior monastics who are visiting the proposed Monastery for higher levels of meditation study, provide 32 beds for a maximum of 32 guests who are attending meditation retreats at the proposed Monastery, and provide accommodations for up to 14 Monastery volunteers. Therefore, the project may generate approximately 6,720 gallons of wastewater per day[9] during normal operations, which accounts for approximately 0.032 percent of the wastewater collected by SGVWC per day.

A maximum of 400 visitors would be expected to attend the Monastery during special events and celebrations (which would occur two to three times were year during a single day or evening). Special events may generate approximately 32,000 gallons of wastewater[10], which accounts for 0.01 percent of the wastewater collected by SGVWC per day.

The three water reclamation plants have sufficient capacity to accommodate the wastewater generated by the proposed Monastery. Furthermore, sewer connection fees would be determined

[9] Normal operations: (6 monastery employees + 78 maximum temporary to long-term guests) x 80 gallons of wastewater per day = 6,720 gallons of wastewater per day.

[10] Special Events: (400 maximum visitors) x 80 gallons of wastewater per day = 32,000 gallons of wastewater per day for Special Events.

by LACSD during project plan review and permit issuance. While the project would have a **less than significant impact**, further analysis in the forthcoming EIR is warranted.

LESS THAN SIGNIFICANT IMPACT

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?

Valley Vista Services, Inc. provides trash collection and recycling services to for the Hacienda Heights community. Trash collected by Valley Vista Services is taken to the Grand Central Recycling and Transfer Station, located at 17445 Railroad Street in the City of Industry, which is approximately 4.3 miles northeast of the project site. Recyclable waste materials are sorted and bailed for resale at the Grand Central Recycling and Transfer Station, and non-recyclable waste materials are sent to the El Sobrante Landfill or Olinda Landfill (A. Mendoza, personal communication, January 28, 2019). The El Sobrante Landfill has a maximum permitted throughput of 16,054 tons per day, and the Olinda Landfill has a maximum permitted throughput of 8,000 tons per day (CalRecycle 2019). The El Sobrante Landfill is permitted to operate through 2051 and the Olinda Landfill is permitted to operate through 2021.

The project would not require any building demolition as most of the site is undeveloped, and the existing single-family residence would undergo interior renovations only. There would be some debris from site clearance activities, e.g. asphalt from the existing access way and vegetation materials. However, County Green Building Code Title 31 Section 5.408 requires newly-constructed project to recycle and/or salvage for reuse a minimum of 65 percent of the non-hazardous construction and demolition debris in accordance with the code. Therefore, no substantial demolition debris would be generated. The project would generate both construction and operational solid waste, which would be disposed of at the aforementioned landfills. The proposed Monastery would generate approximately 435 tons of waste per year (or 1.2 tons per day) during anticipated operations, based on modeling results from CalEEMod (Appendix A). Waste generated by the proposed Monastery would account for approximately 0.007 percent of the daily throughput at the El Sobrante Landfill and approximately 0.025 percent of the daily throughput at the Olinda Landfill. Therefore, the project would have a **less than significant impact**, and further analysis in the forthcoming EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

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

The California Integrated Waste Management Act of 1989 (Assembly Bill 939) mandates that local jurisdictions divert at least 50 percent of all solid waste generated by 2020. The County achieved 74 percent waste diversion rate in 2014, and the County Board of supervisors established goals to divert 80 percent of solid waste generated in unincorporated County areas from landfills by 2025, 90 percent by 2035, and 95 percent or more by 2045 (Los Angeles County 2017). Implementation of the project would not conflict with any federal, state, or local regulations related to solid waste. Therefore, the project would have **no impact**, and further analysis in the forthcoming EIR is not warranted.

NO IMPACT

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 downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	■	☐	☐	☐

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

The project site is located on mostly undeveloped land in the Puente Hills, which are in a Very High Fire Hazard Severity Zone as shown in Figure 12.5, *Fire Hazard Severity Zones Policy Map*, of the County's General Plan 2035. The project would not impair the implementation of the County's All-Hazard Mitigation Plan (AHMP) (Los Angeles County 2014a), and hazard management programs and policies of neighboring cities such as the City of Whittier's 2015 Natural Hazards Mitigation Plan and the City of La Habra Heights' Annual Brush Clearance Program. Furthermore, the project would be required to submit a Fuel Modification Plan per County Code Section 4908.1 and follow applicable guidelines with the proposed development. Therefore, the project would have a **less than significant impact** on existing emergency response or evacuation plans, and further analysis in the forthcoming EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

b. *If located in or near state responsibility areas or lands classified as very high fire hazard 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?*

c. *If located in or near state responsibility areas or lands classified as very high fire hazard 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?*

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

The project site is located on an undeveloped parcel in the Puente Hills, which are in a Very High Fire Hazard Severity Zone as shown in Figure 12.5, *Fire Hazard Severity Zones Policy Map*, of the County's General Plan 2035. The project site is in a State Responsibility Area (SRA) (CAL FIRE 2012). Therefore, a fuel modification plan would be required for the project site prior to issuance of occupancy permits, pursuant to County Code Title 32, Section 4908.1 *Fuel Modification Plan in Fire Hazard Severity Zones*.

The project site contains three main hills and steep slopes on varying topography. As discussed in responses provided in Section 7, *Geology and Soils*, the project site is also located in liquefaction and landslide zones (California Department of Conservation 2018). The project site has the potential to exacerbate wildfire risks, and downstream flooding or landslides resulting from post-fire slope instability or drainage changes due to existing physical characteristics of the site. Therefore, the project has a **potentially significant impact**, and further analysis in the forthcoming EIR is warranted.

POTENTIALLY SIGNIFICANT IMPACT

21 Mandatory Findings of Significance

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Does the project:				
a. 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. 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. Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	■	□	□	□

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?

The project site is vacant and contains several sensitive vegetation communities as discussed in Section 4, *Biological Resources*. Therefore, implementation of this project would have potentially significant effects on the quality of existing habitats and plant communities. As discussed in Section 5, *Cultural Resources*, and Section 7, *Geology and Soils*, ground disturbing construction activities to implement the project may unearth and adversely affect previously unknown archaeological and paleontological resources. Therefore, the project has a **potentially significant impact** on biological, cultural, and paleontological resources, and impacts will be further analyzed in the forthcoming EIR.

POTENTIALLY SIGNIFICANT IMPACT

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)?

The project entails construction of 17 new buildings, which would be used as meditation halls and classrooms for members of the community and existing Temple, and dormitories for visiting senior monastics. The existing single-family residence would be renovated for use as a volunteers' dormitory. Implementation of the project, in conjunction with other projects in the surrounding area, may result in impacts that are cumulatively considerable. In addition, impacts directly associated with the project have the potential to be cumulatively considerable.

Impacts found to be potentially significant, or less than significant but warranting additional analysis in the forthcoming EIR, will also be analyzed for **potentially significant cumulatively considerable impacts**. These include impacts related to Aesthetics (Criterion a, c, and d), Biological Resources (Criterion a through e), Cultural Resources (Criterion b and c), Geology and Soils (Criterion a, b, c, d, and f), Hazards and Hazardous Materials (Criterion g), Hydrology and Water Quality (Criterion a through e), Noise (Criterion a), Public Services (Criterion a 1 and 2), Recreation (Criterion b), Transportation (Criterion b and d), Tribal Cultural Resources (Criterion a and b), Utilities and Service Systems (Criterion c), and Wildfire (Criterion b, c, and d).

Impacts found to be less than significant and not warranting additional analysis in the PEIR, and those areas with a conclusion of no impact, would inherently also not result in cumulatively considerable impacts and no further cumulative analysis is required in the forthcoming PEIR. These topics include Aesthetics (Criterion b), Agriculture and Forestry Resources (Criterion a through d), Air Quality (Criterion a through d), Biological Resources (Criterion f), Cultural Resources (Criterion a), Energy (Criterion a and b), Geology and Soils (Criterion e), GHG Emissions (Criterion a and b), Hazards and Hazardous Materials (Criterion a through f), Land Use and Planning (Criterion a and b), Mineral Resources (Criterion a and b), Noise (Criterion b and c), Population and Housing (Criterion a and b), Public Services (Criterion a 3 through 5), Recreation (Criterion a), Transportation (Criterion a and c), Utilities and Service Systems (Criterion a, b, d, and e), and Wildfire (Criterion a).

POTENTIALLY SIGNIFICANT IMPACT

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

In general, impacts to human beings are associated with air quality, hazards and hazardous materials, and noise impacts. As detailed in the preceding responses, the proposed Monastery would not result, either directly or indirectly, in adverse hazards related to air quality (Section 3) or hazardous materials (Section 9) with exception to wildfire hazards (further discussed in Section 20). The project may result in substantial adverse effects to human beings from temporary construction noise (Section 13) and wildfire (Section 20). Based on the analysis in this Initial Study, direct and indirect impacts to human beings as a result of implementing the project may be **potentially significant**.

POTENTIALLY SIGNIFICANT IMPACT

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Appendix A

Air Quality and Greenhouse Gas Emissions Study

Hsi Lai Monastery Site

Air Quality and Greenhouse Gas Emissions Study

prepared for

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1 Project Description and Impact Summary

1.1 Introduction

This study analyzes the potential air quality and greenhouse gas (GHG) emissions impacts of the proposed construction and operation of the Hsi Lai Temple Monastery Site Project (project). Rincon Consultants, Inc. (Rincon) prepared this study under contract to the International Buddhist Progress Society (IBPS) for use by the County of Los Angeles (County), in support of the environmental documentation being prepared pursuant to the California Environmental Quality Act (CEQA). Table 1 provides a summary of project impacts.

Table 1 Summary of Impacts

Impact Statement	Proposed Project's Level of Significance	Applicable Recommendations
Air Quality		
Conflict with or obstruct implementation of the applicable air quality plan?	Less than significant impact	None
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 ambient air quality standard?	Less than significant impact	None
Expose sensitive receptors to substantial pollutant concentrations?	Less than significant impact	None
Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	Less than significant impact	None
Greenhouse Gas Emissions		
Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Less than significant impact	None
Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	Less than significant impact	None

Regulatory Compliance Measures

Regulatory compliance measures (RCMs) are existing requirements and reasonably-anticipated standard conditions that are based on local, state, or federal regulations and laws that are frequently required independently of CEQA review and serve to offset or prevent specific impacts. RCMs are not included as mitigation measures in the environmental clearance document since the project is required to comply with the RCMs through state and local regulations.

RCM-1 Demolition, Grading, and Construction Activities: Compliance with Provisions of SCAQMD Rule 403.

The project shall comply with all applicable standards of the Southern California Air Quality Management District (SCAQMD), including the following provisions and Best Available Control Measures of Rule 403:

- All unpaved demolition and construction areas shall be wetted at least twice daily during excavation and construction, and temporary dust covers shall be used to reduce dust emissions and meet SCAQMD Rule 403.
- The construction area shall be kept sufficiently dampened to control dust caused by grading and hauling, and at all times provide reasonable control of dust caused by wind.
- All clearing, earth moving, or excavation activities shall be discontinued during periods of high winds (i.e., greater than 15 mph), so as to prevent excessive amounts of dust.
- All dirt/soil shall be secured by trimming, watering, or other appropriate means to prevent spillage and dust.
- All dirt/soil materials transported off-site shall be either sufficiently watered or securely covered to prevent excessive amounts of dust.
- General contractors shall maintain and operate construction equipment so as to minimize exhaust emissions.
- Trucks having no current hauling activity shall not idle but be turned off.
- In addition, exposed surfaces shall be maintained at a minimum soil moisture of 12 percent and vehicle speeds shall be limited to 15 miles per hour on unpaved roads.

RCM-2 Engine Idling

In accordance with Section 2485 of Title 13 of the California Code of Regulations, the idling of all diesel-fueled commercial vehicles (weighing over 10,000 pounds) during construction shall be limited to five minutes at any location.

RCM-3 Emission Standards

In accordance with Section 93115 of Title 17 of the California Code of Regulations, operation of any stationary, diesel-fueled, compression-ignition engines shall meet specified fuel and fuel additive requirements and emission standards.

RCM-4 Architectural Coatings

The project shall comply with SCAQMD Rule 1113 limiting the volatile organic compound (VOC) content of architectural coatings.

RCM-5 Wood Burning Fireplaces

In accordance with SCAQMD Rule 445, no wood-burning devices (e.g., fireplaces) would be installed in the development.

1.2 Project Summary

Project Background

The 28.96-acre project site is located at 15866 Draper Road, Hacienda Heights, California (Assessor Parcel Numbers 8240-036-021, 8291-035-020 and 8291-035-021). The project site is located west of South Hacienda Blvd and approximately two miles south of California State Highway 60 in the County of Los Angeles.

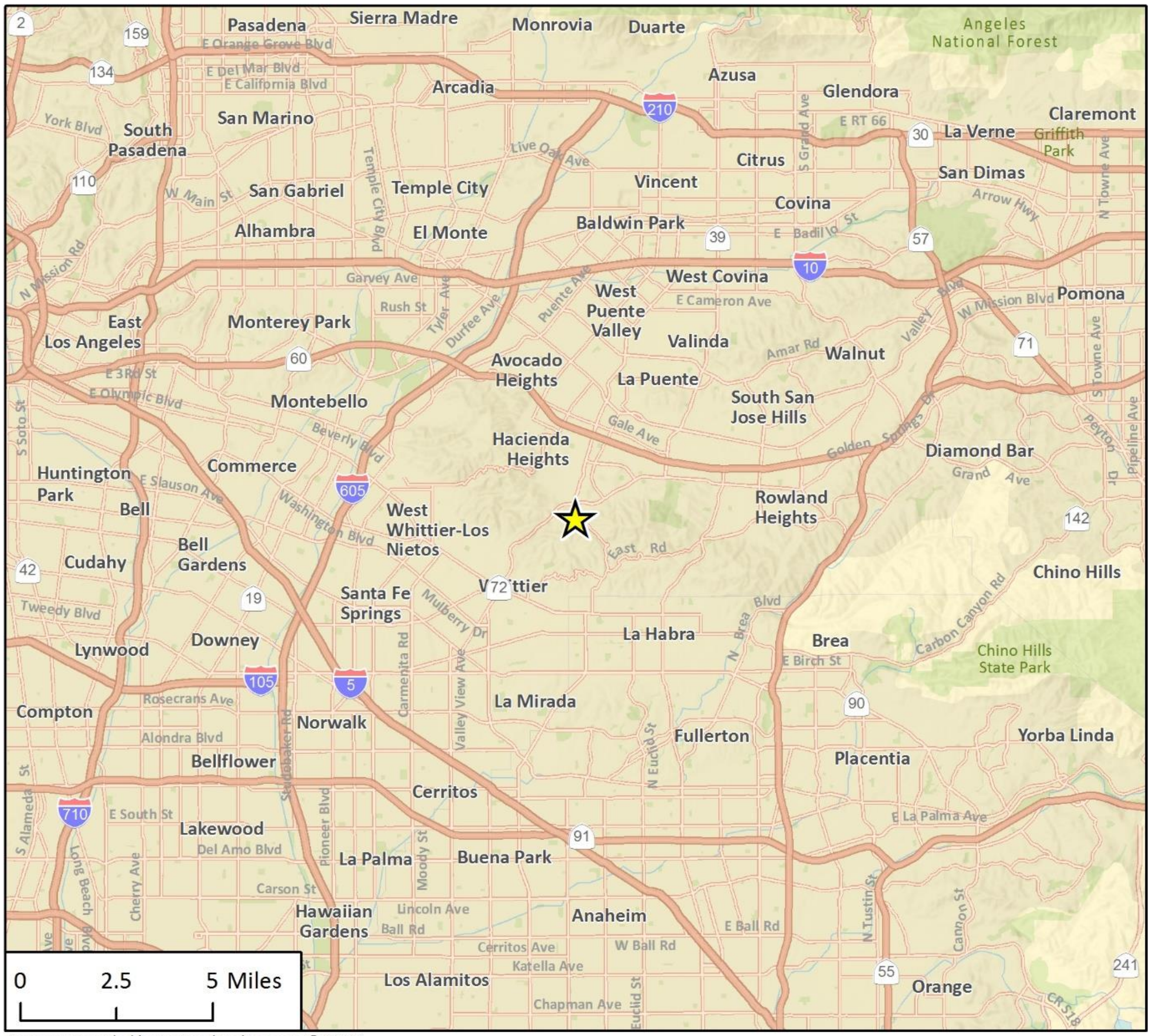
The two northern project parcels and the eastern portion of the large vacant parcel (APN 8240-036-021) have a zoning designation of Light Agriculture (A-1-1). The western portion of the large vacant parcel has a zoning designation of Heavy Agriculture (A-2-1). Single- and multi-family residences are located to the north and northeast of the project site. A portion of the Arroyo San Miguel Open Space is located south of the project site, and the Hsi Lai Temple is located directly east of the project site. Figure 1 shows the regional location of the site and Figure 2 shows the project site within the existing neighborhood context.

Proposed Project

The project entails construction of a monastery with associated accessory uses composed of 17 free-standing two-story buildings and the renovation of a single-family residence into a dormitory on a site located adjacent to the Hsi Lai Temple on the east side of South Hacienda Boulevard. The project would contain 143,671 square feet of programmed space and the renovation of the existing 5,318 square-foot residential building into a volunteers' dormitory. The project would serve as a meditation center and provide living accommodations for IBPS senior monastics. In addition, the monastery would host educational programs and events for other members of the Buddhist community. The project would consist of the construction of 8 dormitory-style living facilities for a maximum of 68 senior monastic residents and temporary overnight guests, dining facilities, classrooms, offices, and a reception/meditation complex near the entrance to the project site to accommodate a maximum of 400 people. Figure 3 shows the proposed project site plan.

Project construction is estimated to occur from June 2022 to December 2023, with project occupancy beginning in 2024. Construction phases would include site preparation, grading, building construction, paving, and architectural coating. Project construction would export 91,056 cubic yards of soil (86,720 cubic yards of raw export with a 5 percent bulking factor). Construction would not require any blasting or pile driving activities. Construction access to the site would be from South Hacienda Boulevard onto Draper Road which runs east to west on the site.

Figure 1 Regional Location



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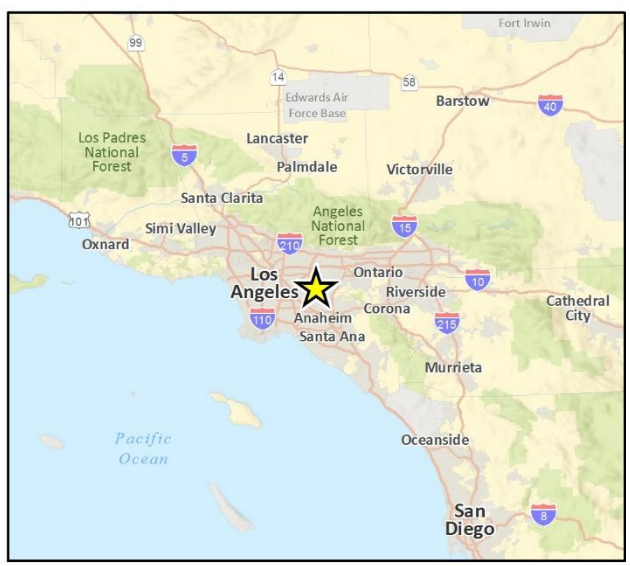

Project Location

Figure 2 Project Site Location

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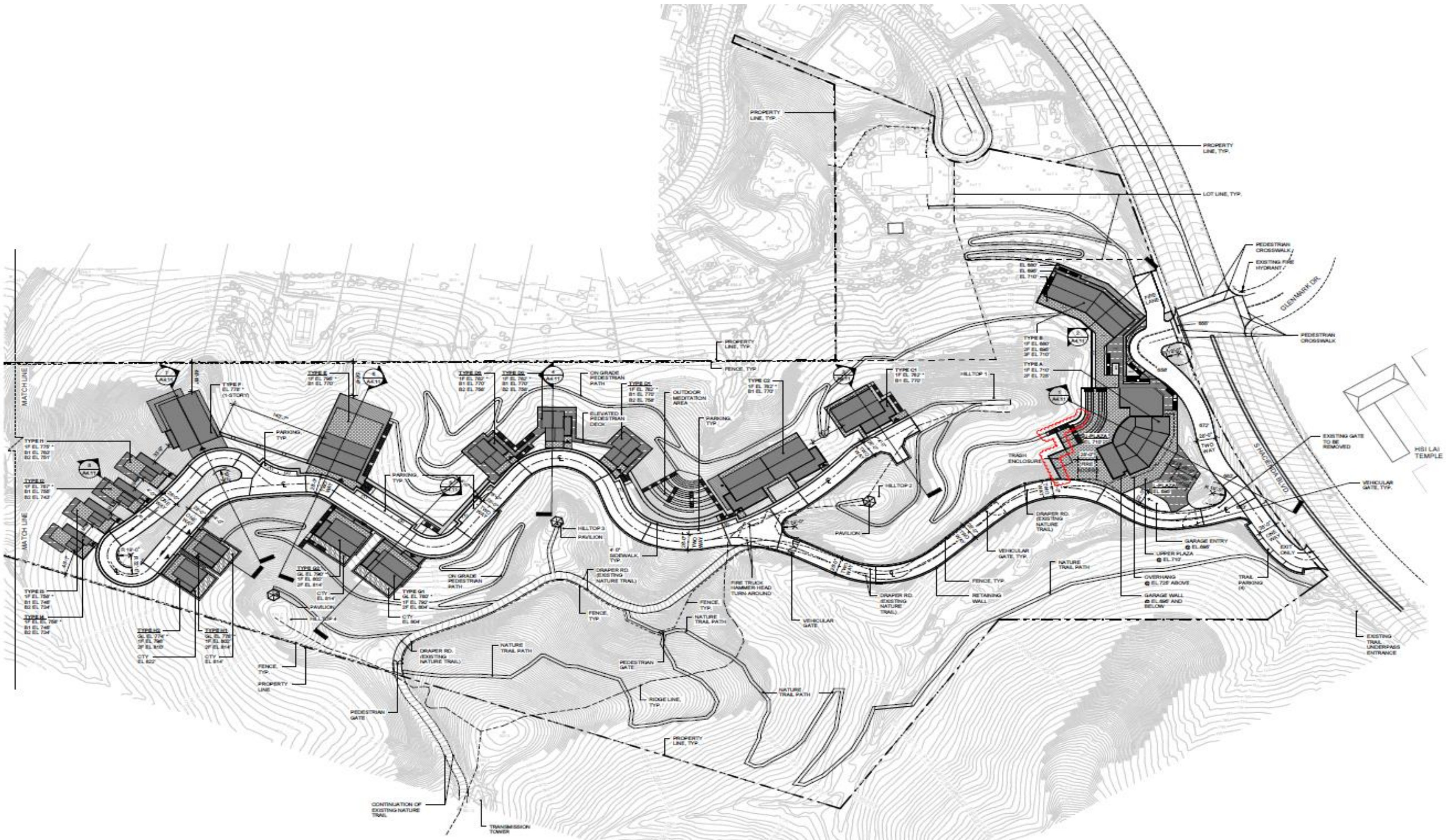
Fig 2 Project Site Location Map

Figure 3 Project Site Plan



2 Background

2.1 Air Quality

Local Climate and Meteorology

The project site is within the South Coast Air Basin (SCAB), which is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The SCAB includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, in addition to the San Gorgonio Pass area in Riverside County. The regional climate in the SCAB is semi-arid and is characterized by warm summers, mild winters, infrequent seasonal rainfall, moderate daytime onshore breezes, and moderate humidity. The air quality within the SCAB is primarily influenced by meteorology and a wide range of emission sources, such as dense population centers, substantial vehicular traffic, and industry.

Air pollutant emissions in the SCAB are generated primarily by stationary and mobile sources. Stationary sources can be divided into two major subcategories: point and area sources. Point sources occur at a specific location and are often identified by an exhaust vent or stack. Examples include boilers or combustion equipment that produce electricity or generate heat. Area sources are widely distributed and include such sources as residential and commercial water heaters, painting operations, lawn mowers, agricultural fields, landfills, and some consumer products. Mobile sources refer to emissions from motor vehicles, including tailpipe and evaporative emissions, and are classified as either on-road or off-road. On-road sources may be legally operated on roadways and highways. Off-road sources include aircraft, ships, trains, and self-propelled construction equipment. Air pollutants can also be generated by the natural environment, such as when high winds suspend fine dust particles.

Air Quality Regulations

The federal and state governments have established ambient air quality standards for the protection of public health. The United States Environmental Protection Agency (U.S. EPA) is the federal agency designated to administer air quality regulation, while the California Air Resources Board (CARB) is the state equivalent in the California Environmental Protection Agency (CalEPA). Regional-level Air Quality Management Districts (AQMDs) provide local management of air quality. CARB has established air quality standards and is responsible for the control of mobile emission sources, while the local AQMDs are responsible for enforcing standards and regulating stationary sources. CARB has established 15 air basins statewide, including the SCAB.

The U.S. EPA has set primary national ambient air quality standards (NAAQS) for ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter with diameters of up to ten microns (PM_{10}) and up to 2.5 microns ($PM_{2.5}$), and lead (Pb). Primary standards are those levels of air quality deemed necessary, with an adequate margin of safety, to protect public health. In addition, California has established health-based ambient air quality standards (known as the California ambient air quality standards [CAAQS]) for these and other pollutants, some of which are more stringent than the federal standards. Table 2 lists the current federal and state standards for regulated pollutants.

Table 2 Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	NAAQS	CAAQS
Ozone	1-Hour	–	0.09 ppm
	8-Hour	0.070 ppm	0.070 ppm
Carbon Monoxide	8-Hour	9.0 ppm	9.0 ppm
	1-Hour	35.0 ppm	20.0 ppm
Nitrogen Dioxide	Annual	0.053 ppm	0.030 ppm
	1-Hour	0.100 ppm	0.18 ppm
Sulfur Dioxide	Annual	–	–
	24-Hour	–	0.04 ppm
	1-Hour	0.075 ppm	0.25 ppm
PM_{10}	Annual	–	20 μg/m^3
	24-Hour	150 μg/m^3	50 μg/m^3
$PM_{2.5}$	Annual	12 μg/m^3	12 μg/m^3
	24-Hour	35 μg/m^3	–
Lead	30-Day Average	–	1.5 μg/m^3
	3-Month Average	0.15 μg/m^3	–

ppm = parts per million
μg/m^3 = micrograms per cubic meter
Source: CARB 2016

The SCAQMD is the designated air quality control agency in the SCAB, which is a non-attainment area for the federal standards for ozone and $PM_{2.5}$ and the state standards for ozone, PM_{10} and $PM_{2.5}$. Areas of the SCAB located in Los Angeles County are also in nonattainment for lead (SCAQMD 2016). The SCAB is designated unclassifiable or in attainment for all other federal and state standards. Characteristics of O_3, CO, NO_2, and suspended particulate matter are described below.

Ozone

O_3 is produced by a photochemical reaction (triggered by sunlight) between nitrogen oxides (NO_X) and reactive organic gases (ROG[1]). NO_X are formed during the combustion of fuels, while ROG are formed during combustion and evaporation of organic solvents. Because O_3 requires sunlight to form, it usually occurs in substantial concentrations between the months of April and October. O_3 is a pungent, colorless, toxic gas with direct health effects on humans including respiratory and eye

[1] Organic compound precursors of ozone are routinely described by a number of variations of three terms: hydrocarbons (HC), organic gases (OG), and organic compounds (OC). These terms are often modified by adjectives such as total, reactive, or volatile, and result in various acronyms: HC, THC (total hydrocarbons), RHC (reactive hydrocarbons), TOG (total organic gases), ROG (reactive organic gases), TOC (total organic compounds), ROC (reactive organic compounds), and VOC (volatile organic compounds). While most of these differ in some significant way from a chemical perspective, two groups are important from an air quality perspective: non-photochemically reactive in the lower atmosphere, or photochemically reactive in the lower atmosphere (HC, RHC, ROG, ROC, and VOC). SCAQMD uses the term VOC to denote organic precursors.

irritation and possible changes in lung functions. Groups most sensitive to O_3 include children, the elderly, people with respiratory disorders, and people who exercise strenuously outdoors.

Carbon Monoxide

CO is a local pollutant that is found in high concentrations near fuel combustion equipment and other sources of CO. The primary source of CO, a colorless, odorless, poisonous gas, is automobile traffic. Therefore, elevated concentrations are usually found near areas of high traffic volumes. The health effects from CO are related to its affinity for hemoglobin in the blood. At high concentrations, CO reduces the amount of oxygen in the blood, causing heart difficulty in people with chronic diseases, reduced lung capacity, and impaired mental abilities.

Nitrogen Dioxide

NO_2 is a by-product of fuel combustion, with the primary source being motor vehicles and industrial boilers and furnaces. The principal form of nitrogen oxide produced by combustion is nitric oxide (NO), but NO reacts rapidly to form NO_2, creating the mixture of NO and NO_2 commonly called NO_X. NO_2 is an acute irritant. A relationship between NO_2 and chronic pulmonary fibrosis may exist, and an increase in bronchitis in young children at concentrations below 0.3 parts per million (ppm) may occur. NO_2 absorbs blue light, gives a reddish-brown cast to the atmosphere, and reduces visibility. It can also contribute to the formation of ozone/smog and acid rain.

Suspended Particulates

Atmospheric particulate matter is comprised of finely divided solids and liquids such as dust, soot, aerosols, fumes, and mists. The particulates that are of particular concern are PM_{10} (small particulate matter which measures no more than 10 microns in diameter) and $PM_{2.5}$ (fine particulate matter which measures no more than 2.5 microns in diameter). The characteristics, sources, and potential health effects associated with PM_{10} and $PM_{2.5}$ can be different. Major man-made sources of PM_{10} are agricultural operations, industrial processes, combustion of fossil fuels, construction, demolition operations, and entrainment of road dust into the atmosphere. Natural sources include windblown dust, wildfire smoke, and sea spray salt. The finer $PM_{2.5}$ particulates are generally associated with combustion processes as well as formation in the atmosphere as a secondary pollutant through chemical reactions. $PM_{2.5}$ is more likely to penetrate deeply into the lungs and poses a serious health threat to all groups, but particularly to the elderly, children, and those with respiratory problems. More than half of the small and fine particulate matter that is inhaled into the lungs remains there, which can cause permanent lung damage. These materials can damage health by interfering with the body's mechanisms for clearing the respiratory tract or by acting as carriers of an absorbed toxic substance.

Toxic Air Contaminants

Toxic air contaminants (TACs) are a diverse group of air pollutants that may cause or contribute to an increase in deaths or in serious illness or that may pose a present or potential hazard to human health. TACs include both organic and inorganic chemical substances that may be emitted from a variety of common sources, including gasoline stations, motor vehicles, dry cleaners, industrial operations, painting operations, and research and teaching facilities. One of the main sources of TACs in California is diesel engines that emit exhaust containing solid material known as diesel particulate matter (DPM; CARB 2011). TACs are different than the criteria pollutants previously discussed because ambient air quality standards have not been established for TACs. TACs occurring at extremely low levels may still cause health effects, and it is typically difficult to identify levels of exposure that do not produce adverse health effects. TAC impacts are described by carcinogenic risk and by chronic (i.e., of long duration) and acute (i.e., severe but of short duration) adverse effects on human health.

Current Air Quality

The SCAQMD operates a network of air quality monitoring stations throughout the SCAB. The purpose of the monitoring stations is to measure ambient concentrations of pollutants and determine whether ambient air quality meets the California and federal standards. The monitoring station for 8-hour and 1-hour O_3, NO_2, and $PM_{2.5}$ closest to the project is the Pico Rivera-4144 San Gabriel monitoring station, located at 4144 San Gabriel in Pico Rivera, approximately 6.2 miles northwest of the project site. The monitoring station for PM_{10} closest to the project is the Asuza monitoring station, located at 803 North Loren Avenue in Asuza, approximately 11.3 miles north of the project site. Table 3 indicates the number of days that each of the federal and state standards has been exceeded at this station in each of the last three years for which data is available. The data collected at the station indicate that the federal and state 8-hour ozone standards were exceeded each year from 2016 to 2018, and the state worst hour ozone standard was exceeded each year from 2016 to 2018. In addition, the PM_{10} state standard and the $PM_{2.5}$ federal standard were both exceeded each year from 2016 to 2018. No other state or federal standards were exceeded at these monitoring stations.

Table 3 Ambient Air Quality

Pollutant	2016	2017	2018
Ozone (ppm), maximum concentration 8-hours	0.081	0.086	0.082
Number of days of state exceedances (>0.070 ppm)	6	9	5
Number of days of federal exceedances (>0.070 ppm)	6	9	5
Ozone (ppm), maximum concentration 1-hour	0.111	0.118	0.115
Number of days of state exceedances (>0.09 ppm)	9	7	3
Nitrogen Dioxide (ppm), maximum concentration 1-hour	0.0632	0.0750	0.0768
Number of days of state exceedances (>0.18 ppm)	0	0	0
Particulate Matter <10 microns ($\mu g/m^3$), maximum concentration 24-hours	74.0	83.9	78.3
Number of days of state exceedances (>50 $\mu g/m^3$)	12	7	10
Number of days of federal exceedances (>150 $\mu g/m^3$)	0	0	0
Particulate Matter <2.5 microns ($\mu g/m^3$), maximum concentration 24-hours	46.5	49.5	56.3
Estimated number of days of federal exceedances (>35 $\mu g/m^3$)	6.2	3.2	6.1

Source: CARB 2019a

Air Quality Management Plan

Under state law, the SCAQMD is required to prepare a plan for air quality improvement for pollutants for which the District is in non-compliance. The SCAQMD updates the plan every three years. Each SCAQMD Air Quality Management Plan (AQMP) is an update of the previous plan and has a 20-year horizon. The latest AQMP, the 2016 AQMP, was adopted on March 3, 2017. It incorporates new scientific data and notable regulatory actions that have occurred since adoption of the 2012 AQMP, including the approval of the new federal 8-hour ozone standard of 0.070 ppm that was finalized in 2015. The Final 2016 AQMP addresses several state and federal planning requirements and incorporates new scientific information, primarily in the form of updated emissions inventories, ambient measurements, and meteorological air quality models.

The Southern California Association of Government's (SCAG) projections for socio-economic data (e.g., population, housing, employment by industry) and transportation activities from the 2016 Regional Transportation Plan/Sustainable Communities Strategy (2016 RTP/SCS) are integrated into the 2016 AQMP. The plan builds upon the approaches taken in the 2012 AQMP for the attainment of federal PM and ozone standards and highlights the significant amount of reductions to be achieved. It emphasizes the need for interagency planning to identify additional strategies to achieve reductions within the timeframes allowed under the federal Clean Air Act, especially in the area of mobile sources. The 2016 AQMP also includes a discussion of emerging issues and opportunities, such as fugitive toxic particulate emissions, zero-emission mobile source control strategies, and the interacting dynamics among climate, energy, and air pollution. The plan also demonstrates strategies for attainment of the new federal 8-hour ozone standard and vehicle miles travelled (VMT) emissions offsets, pursuant to recent U.S. EPA requirements (SCAQMD 2017).

Sensitive Receptors

CARB and the Office of Environmental Health Hazard Assessment (OEHHA) have identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, infants (including in utero in the third trimester of pregnancy), and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis (CARB 2005, OEHHA 2015). Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved and are referred to as sensitive receptors. Examples of these sensitive receptors are residences, schools, hospitals, religious facilities, and daycare centers.

The closest sensitive receptors include single-family residences located immediately adjacent to the north boundary of the project site and 200 feet northeast of the project site on the eastside of South Hacienda Boulevard, and the existing Hsi Lai Temple (3456 Glenmark Drive) located across South Hacienda Boulevard, approximately 190 feet to the east.

2.2 Greenhouse Gas Emissions

Greenhouse Gas Overview

Gases that absorb and re-emit infrared radiation in the atmosphere are called greenhouse gases (GHGs). The gases that are widely seen as the principal contributors to human-induced climate change include carbon dioxide (CO_2), methane (CH_4), nitrous oxides (N_2O), fluorinated gases such as hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Water vapor is excluded from the list of GHGs because it is short-lived in the atmosphere, and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

GHGs are emitted by both natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 largely results from off-gassing associated with agricultural practices and landfills.

Man-made GHGs, many of which have greater heat-absorption potential than CO_2, include fluorinated gases and SF_6 (United States Environmental Protection Agency [U.S. EPA] 2018). However, because the project is a non-industrial development, the quantity of fluorinated gases would not be significant since fluorinated gases are primarily associated with industrial processes; therefore, fluorinated gases are not analyzed further in this document. Different types of GHGs have varying global warming potentials (GWPs). The GWP of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale (generally, 100 years). Because GHGs absorb different amounts of heat, a common reference gas (CO_2) is used to relate the amount of heat absorbed to the amount of the gas emissions, referred to as "carbon dioxide equivalent" (CO_2e), and is the amount of a GHG emitted multiplied by its GWP. Carbon dioxide has a 100-year GWP of one. By contrast, CH_4 has a GWP of 25, meaning its global warming effect is 25 times greater than carbon dioxide on a molecule per molecule basis (Intergovernmental Panel on Climate Change [IPCC] 2007). N_2O has a global warming potential of 298 (IPCC 2007).

Greenhouse Gas Emissions Inventory

Global

Worldwide anthropogenic emissions of GHGs were approximately 46,000 million metric tons (MMT, or gigatonne) CO_2e in 2010 (IPCC 2014). CO_2 emissions from fossil fuel combustion and industrial processes contributed about 65 percent of total emissions in 2010. Of anthropogenic GHGs, carbon dioxide was the most abundant accounting for 76 percent of total 2010 emissions. Methane emissions accounted for 16 percent of the 2010 total, while nitrous oxide and fluorinated gases accounted for 6 percent and 2 percent respectively (IPCC 2014).

Federal

Total United States GHG emissions were 6,511.3 million metric tons (MMT or gigatonnes) of CO_2e in 2016 (U.S. EPA 2018). Total United States emissions have increased by 2.4 percent since 1990; emissions decreased by 1.9 percent from 2015 to 2016 (U.S. EPA 2018). The decrease from 2014 to 2015 was a result of multiple factors, including: (1) substitution from coal to natural gas and other non-fossil energy sources in the electric power sector and (2) warmer winter conditions in 2016 resulting in a decreased demand for heating fuel in the residential and commercial sectors (U.S. EPA 2018). Since 1990, U.S. emissions have increased at an average annual rate of 0.1 percent. In 2015, the industrial and transportation end-use sectors accounted for 29 percent each of GHG emissions (with electricity-related emissions distributed), respectively. Meanwhile, the residential and commercial end-use sectors accounted for 15 percent and 16 percent of CO_2e emissions, respectively (U.S. EPA 2018).

California

Based on the California Air Resource Board's (CARB) California Greenhouse Gas Inventory for 2000-2016, California produced 429.4 MMT of CO_2e in 2016 (CARB 2018a). The major source of GHGs in

California is associated with transportation, contributing 41 percent of the state's total GHG emissions. The industrial sector is the second largest source, contributing 23 percent of the state's GHG emissions, and electric power accounted for approximately 16 percent (CARB 2018a). California emissions are due in part to its large size and large population compared to other states. However, a factor that reduces California's per capita fuel use and GHG emissions, as compared to other states, is its relatively mild climate. CARB has projected that statewide unregulated GHG emissions for the year 2020 will be 509 MMT of CO_2e (CARB 2018b). These projections represent the emissions that would be expected to occur in the absence of any GHG reduction actions.

Regional

The County's Unincorporated Los Angeles County Community Climate Action Plan 2020 (CCAP) estimated GHG emissions in unincorporated areas of Los Angeles County for 2010 at 7.9 MMT of CO_2e. According to the CCAP, this is a per capita emissions rate of 7.5 MT of CO_2e. Building energy use is the largest source of GHG emissions at 49 percent, with transportation representing 42 percent of emissions.

Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources through potential impacts related to future air temperatures and precipitation patterns. Scientific modeling predicts that continued GHG emissions at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. Long-term trends have found that each of the past three decades has been warmer than all the previous decades in the instrumental record, and the decade from 2000 through 2010 has been the warmest. The observed global mean surface temperature (GMST) for the decade from 2006 to 2015 was approximately 0.87°C (0.75°C to 0.99°C) higher than the average GMST over the period from 1850 to 1900. Furthermore, several independently analyzed data records of global and regional Land-Surface Air Temperature (LSAT) obtained from station observations agree that LSAT as well as sea surface temperatures have increased. Due to past and current activities, anthropogenic GHG emissions are increasing global mean surface temperature at a rate of 0.2°C per decade. In addition to these findings, there are identifiable signs that global warming is currently taking place, including substantial ice loss in the Arctic over the past two decades (IPCC 2014 and 2018).

According to *California's Fourth Climate Change Assessment*, statewide temperatures from 1986 to 2016 were approximately 1°F to 2°F higher than those recorded from 1901 to 1960. Potential impacts of climate change in California may include loss in water supply from snow pack, sea level rise, more extreme heat days per year, more large forest fires, and more drought years (State of California 2018a). While there is growing scientific consensus about the possible effects of climate change at a global and statewide level, current scientific modeling tools are unable to predict what local impacts may occur with a similar degree of accuracy. In addition to statewide projections, *California's Fourth Climate Change Assessment* includes regional reports that summarize climate impacts and adaptation solutions for nine regions of the state as well as regionally-specific climate change case studies (State of California 2018a), including for the Los Angeles region (State of California 2018b). Below is a summary of some of the potential effects that could be experienced in California and the Los Angeles region as a result of climate change.

Air Quality

Higher temperatures, which are conducive to air pollution formation, could worsen air quality in California. Climate change may increase the concentration of ground-level ozone, but the magnitude of the effect, and therefore its indirect effects, are uncertain. As temperatures have increased in recent years, the area burned by wildfires throughout the state has increased, and wildfires have been occurring at higher elevations in the Sierra Nevada Mountains (State of California 2018a). If higher temperatures continue to be accompanied by an increase in the incidence and extent of large wildfires, air quality would worsen. However, if higher temperatures are accompanied by wetter, rather than drier conditions, the rains would tend to temporarily clear the air of particulate pollution and reduce the incidence of large wildfires, thereby ameliorating the pollution associated with wildfires. Additionally, severe heat accompanied by drier conditions and poor air quality could increase the number of heat-related deaths, illnesses, and asthma attacks throughout the state (California Natural Resources Agency 2009).

In the Los Angeles region, changes in meteorological conditions under climate change will affect future air quality. Regional stagnation conditions may occur more often in the future, which would increase pollutant concentrations (State of California 2018b). Hotter future temperatures will act to increase surface ozone concentrations both due to chemistry producing more ozone and higher rates of biogenic emissions, while increases of water vapor also influence chemistry by increasing ozone production in already polluted areas

Water Supply

Analysis of paleoclimatic data (such as tree-ring reconstructions of stream flow and precipitation) indicates a history of naturally and widely varying hydrologic conditions in California and the west, including a pattern of recurring and extended droughts. Uncertainty remains with respect to the overall impact of climate change on future precipitation trends and water supplies in California. For example, many southern California cities have experienced their lowest recorded annual precipitation twice within the past decade; however, in a span of only two years, Los Angeles experienced both its driest and wettest years on record (California Department of Water Resources [DWR] 2008). This uncertainty regarding future precipitation trends complicates the analysis of future water demand, especially where the relationship between climate change and its potential effect on water demand is not well understood. However, the average early spring snowpack in the western United States, including the Sierra Nevada Mountains, decreased by about 10 percent during the last century. During the same period, sea level rose over 5.9 inches along the central and southern California coast (State of California 2018a). The Sierra snowpack provides the majority of California's water supply by accumulating snow during the state’s wet winters and releasing it slowly during the state’s dry springs and summers. A warmer climate is predicted to reduce the fraction of precipitation falling as snow and result in less snowfall at lower elevations, thereby reducing the total snowpack (DWR 2008; State of California 2018a). The State of California projects that average spring snowpack in the Sierra Nevada and other mountain catchments in central and northern California will decline by approximately 66 percent from its historical average by 2050 (State of California 2018a).

Like the rest of the state, the Los Angeles region is expected to face a challenging combination of decreased water supply and increased water demand (State of California 2018b). Greater interannual variability of rainfall and sharp decreases in snowpack will create surface water limitations for the region. Although the effect of climate change on average precipitation in the region is still unclear, more frequent occurrences of extreme events similar to the 2011-2016 drought could significantly decrease groundwater recharge, which is essential for the sustainability of agriculture in the region since the vast majority of water used in agriculture in the region is groundwater from local wells. Furthermore, higher temperatures mean that dry years will more quickly develop into severe drought conditions.

Hydrology and Sea Level Rise

As discussed above, climate change could potentially affect the amount of snowfall, rainfall, and snow pack; the intensity and frequency of storms; flood hydrographs (flash floods, rain or snow events, coincidental high tide and high runoff events); sea level rise and coastal flooding; coastal erosion; and the potential for salt water intrusion. Climate change has the potential to induce substantial sea level rise in the coming century (State of California 2018a). The rising sea level increases the likelihood and risk of flooding. The rate of increase of global mean sea levels over the 2001-2010 decade, as observed by satellites, ocean buoys and land gauges, was approximately 3.2 mm per year, which is double the observed 20th century trend of 1.6 mm per year (World Meteorological Organization [WMO] 2013). As a result, global mean sea levels averaged over the last decade were about 8 inches higher than those of 1880 (WMO 2013). Sea levels are rising faster now than in the previous two millennia, and the rise is expected to accelerate, even with robust GHG emission control measures. The most recent IPCC report predicts a mean sea–level rise of 10 to 37 inches by 2100 (IPCC 2018). A rise in sea levels could completely erode 31 to 67 percent of southern California beaches, result in flooding of approximately 370 miles of coastal highways during 100-year storm events, jeopardize California's water supply due to salt water intrusion, and induce groundwater flooding and/or exposure of buried infrastructure (State of California 2018a). In addition, increased CO_2 emissions can cause oceans to acidify due to the carbonic acid it forms. Increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events.

In the Los Angeles region, despite small changes in average precipitation, dry and wet extremes are both expected to increase. By the late 21st century, the wettest day of the year is expected to increase across most of the region. Increased frequency and severity of atmospheric river events are also projected to occur for this region.

Agriculture

California has a $50 billion annual agricultural industry that produces over a third of the country's vegetables and two-thirds of the country's fruits and nuts (California Department of Food and Agriculture 2018). Higher CO_2 levels can stimulate plant production and increase plant water-use efficiency. However, if temperatures rise and drier conditions prevail, certain regions of agricultural production could experience water shortages of up to 16 percent; water demand could increase as hotter conditions lead to the loss of soil moisture; crop-yield could be threatened by water-induced stress and extreme heat waves; and plants may be susceptible to new and changing pest and disease outbreaks (State of California 2018a). In addition, temperature increases could change the time of year certain crops, such as wine grapes, bloom or ripen, and thereby affect their quality (California Climate Change Center 2006).

As described above, in the Los Angeles region more frequent droughts could significantly decrease groundwater recharge and therefore impact agricultural operations that use groundwater from local wells (State of California 2018b). This and other climate effects can contribute to higher food prices and shortages. In addition, pest and disease issues with crops are anticipated to increase.

Ecosystems and Wildlife

Climate change and the potential resulting changes in weather patterns could have ecological effects on a global and local scale. Increasing concentrations of GHGs are likely to accelerate the rate of climate change. Scientists project that the annual average maximum daily temperatures in California could rise by 4.4 to 5.8°F in the next 50 years and by 5.6 to 8.8°F in the next century (State of California 2018a). Soil moisture is likely to decline in many regions, and intense rainstorms are likely to become more frequent. Rising temperatures could have four major impacts on plants and animals related to (1) timing of ecological events; (2) geographic distribution and range; (3) species' composition and the incidence of nonnative species within communities; and (4) ecosystem processes, such as carbon cycling and storage (Parmesan 2006; State of California 2018a).

Many of the impacts identified above would impact ecosystems and wildlife in the Los Angeles region. Increases in wildfire would further remove sensitive habitat; increased severity in droughts would potentially starve plants and animals of water; and sea level rise will affect sensitive coastal ecosystems.

Greenhouse Gas Regulations

Federal Regulations

The U.S. Supreme Court in *Massachusetts et al. v. Environmental Protection Agency et al*. ([2007] 549 U.S. 497) held that the U.S. EPA has the authority to regulate motor-vehicle GHG emissions under the federal Clean Air Act. The U.S. EPA issued a Final Rule for mandatory reporting of GHG emissions in October 2009. This Final Rule applies to fossil fuel suppliers, industrial gas suppliers, direct GHG emitters, and manufacturers of heavy-duty and off-road vehicles and vehicle engines, and requires annual reporting of emissions. In 2012, the U.S. EPA issued a Final Rule that establishes the GHG permitting thresholds that determine when Clean Air Act permits under the New Source Review Prevention of Significant Deterioration (PSD) and Title V Operating Permit programs are required for new and existing industrial facilities.

In 2014, the U.S. Supreme Court in *Utility Air Regulatory Group v. EPA* (134 S. Ct. 2427 [2014]) held that U.S. EPA may not treat GHGs as an air pollutant for purposes of determining whether a source is a major source required to obtain a PSD or Title V permit. The Court also held that PSD permits that are otherwise required (based on emissions of other pollutants) may continue to require limitations on GHG emissions based on the application of Best Available Control Technology (BACT).

California Regulations

CARB is responsible for the coordination and oversight of State and local air pollution control programs in California. California has numerous regulations aimed at reducing the state's GHG emissions. These initiatives are summarized below.

CALIFORNIA ADVANCED CLEAN CARS PROGRAM

Assembly Bill (AB) 1493 (2002), California's Advanced Clean Cars program (referred to as "Pavley"), requires CARB to develop and adopt regulations to achieve "the maximum feasible and cost-effective reduction of GHG emissions from motor vehicles." On June 30, 2009, the U.S. EPA granted the waiver of Clean Air Act preemption to California for its GHG emission standards for motor vehicles beginning with the 2009 model year. Pavley I regulates model years from 2009 to 2016 and Pavley II, which is now referred to as "LEV (Low Emission Vehicle) III GHG" regulates model years from 2017 to 2025. The Advanced Clean Cars program coordinates the goals of the Low Emissions Vehicles (LEV), Zero Emissions Vehicles (ZEV), and Clean Fuels Outlet programs, and would provide major reductions in GHG emissions. By 2025, when the rules will be fully implemented, new automobiles will emit 34 percent fewer GHGs and 75 percent fewer smog-forming emissions from their model year 2016 levels (CARB 2011).

Executive Order S-3-05

On June 1, 2005, Executive Order (EO) S-3-05 proclaimed that California is vulnerable to climate change impacts. It declared that increased temperatures could reduce snowpack in the Sierra Nevada, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To avoid or reduce climate change impacts, EO S-3-05 calls for a reduction in GHG emissions to the year 2000 level by 2010, to year 1990 levels by 2020, and to 80 percent below 1990 levels by 2050. EOs are not laws and can only provide the governor's direction to state agencies to act within their authority.

Assembly Bill 32

California's major initiative for reducing GHG emissions is outlined in Assembly Bill 32 (AB 32), the "California Global Warming Solutions Act of 2006," which was signed into law in 2006. AB 32 codifies the statewide goal of reducing GHG emissions to 1990 levels by 2020 and requires CARB to prepare a Scoping Plan that outlines the main State strategies for reducing GHGs to meet the 2020 deadline. In addition, AB 32 requires CARB to adopt regulations to require reporting and verification of statewide GHG emissions. Based on this guidance, CARB approved a 1990 statewide GHG level and 2020 limit of 427 MMT CO_2e. The Scoping Plan was approved by CARB on December 11, 2008 and included measures to address GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste, among other measures. Many of the GHG reduction measures included in the Scoping Plan (e.g., Low Carbon Fuel Standard, Advanced Clean Car standards, and Cap-and-Trade) have been adopted since approval of the Scoping Plan.

In May 2014, CARB approved the first update to the AB 32 Scoping Plan (2013 Scoping Plan Update). The 2013 Scoping Plan Update defined CARB's climate change priorities for the next five years and set the groundwork to reach post-2020 statewide goals. The update highlighted California's progress toward meeting the "near-term" 2020 GHG emission reduction goals defined in the original Scoping Plan. It also evaluated how to align the State's longer-term GHG reduction strategies with other State policy priorities, including those for water, waste, natural resources, clean energy, transportation, and land use (CARB 2018c).

Senate Bill 97

Senate Bill (SB) 97, signed in August 2007, acknowledges that climate change is an environmental issue that requires analysis in California Environmental Quality Act (CEQA) documents. In March 2010, the California Natural Resources Agency (Resources Agency) adopted amendments to the State *CEQA Guidelines* for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted guidelines give lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHG and climate change impacts.

Senate Bill 375

SB 375, signed in August 2008, enhances the state's ability to reach AB 32 goals by directing CARB to develop regional GHG emission reduction targets to be achieved from passenger vehicles by 2020 and 2035. In addition, SB 375 directs each of the state's 18 major Metropolitan Planning Organizations (MPOs) to prepare a "sustainable communities strategy" (SCS) that contains a growth strategy to meet these emission targets for inclusion in each MPO's Regional Transportation Plan (RTP). On March 22, 2018, CARB adopted updated regional targets for reducing GHG emissions from 2005 levels by 2020 and 2035. The Southern California Association of Governments (SCAG) was assigned targets of an 8 percent reduction in GHGs from transportation sources by 2020 and a 19 percent reduction in GHGs from transportation sources by 2035. In the SCAG region, SB 375 also provides the option for the coordinated development of subregional plans by the subregional councils of governments and the county transportation commissions to meet SB 375 requirements.

EXECUTIVE ORDER B-30-15

On April 29, 2015, EO B-30-15 established a California GHG emission reduction target of 40 percent below 1990 levels by 2030. The EO aligns California's GHG emission reduction targets with those of leading international governments, including the 28-nation European Union. California is on track to meet or exceed the target of reducing greenhouse gas emissions to 1990 levels by 2020, as established in AB 32. California's new emission reduction target of 40 percent below 1990 levels by 2030 will make it possible to reach the goal established by EO S-3-05 of reducing emissions 80 percent under 1990 levels by 2050. SB 32, described below, mandates the 2030 GHG reduction goals of EO B-30-15.

SENATE BILL 32

SB 32, signed into law on September 8, 2016, extends AB 32 by requiring the State to further reduce GHGs to 40 percent below 1990 levels by 2030 (the other provisions of AB 32 remain unchanged). On December 14, 2017, CARB adopted the 2017 Scoping Plan, which provides a framework for achieving the 2030 target. The 2017 Scoping Plan relies on the continuation and expansion of existing policies and regulations, such as the Cap-and-Trade Program, as well as implementation of recently adopted policies and policies, such as SB 350 and SB 1383 (see below). The 2017 Scoping Plan also puts an increased emphasis on innovation, adoption of existing technology, and strategic investment to support its strategies. As with the 2013 Scoping Plan Update, the 2017 Scoping Plan does not provide project-level thresholds for land use development. Instead, it recommends that local governments adopt policies and locally-appropriate quantitative thresholds consistent with statewide per capita goals of six metric tons (MT) CO_2e by 2030 and two MT CO_2e by 2050 (CARB 2017). As stated in the 2017 Scoping Plan, these goals may be appropriate for plan-level analyses (city, county, subregional, or regional level), but not for specific individual projects because they include all emissions sectors in the state (CARB 2017).

SENATE BILL 1383

Adopted in September 2016, SB 1383 requires CARB to approve and begin implementing a comprehensive strategy to reduce emissions of short-lived climate pollutants. The bill requires the strategy to achieve the following reduction targets by 2030:

- Methane – 40 percent below 2013 levels
- Hydrofluorocarbons – 40 percent below 2013 levels
- Anthropogenic black carbon – 50 percent below 2013 levels

The bill also requires the California Department of Resources Recycling and Recovery (CalRecycle), in consultation with the CARB, to adopt regulations that achieve specified targets for reducing organic waste in landfills.

Senate Bill 100

Adopted on September 10, 2018, SB 100 supports the reduction of GHG emissions from the electricity sector by accelerating the state's Renewables Portfolio Standard Program, which was last updated by SB 350 in 2015. SB 100 requires electricity providers to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045.

Executive Order B-55-18

On September 10, 2018, Governor Brown issued EO B-55-18, which established a new statewide goal of achieving carbon neutrality by 2045 and maintaining net negative emissions thereafter. This goal is in addition to the existing statewide GHG reduction targets established by SB 375, SB 32, SB 1383, and SB 100.

California Integrated Waste Management Act (Assembly Bill 341)

The California Integrated Waste Management Act of 1989, as modified by AB 341, requires each jurisdiction's source reduction and recycling element to include an implementation schedule that shows: (1) diversion of 25 percent of all solid waste by January 1, 1995, through source reduction, recycling, and composting activities; (2) diversion of 50 percent of all solid waste on and after January 1, 2000; and (3) diversion of 75 percent of all solid waste by 2020, and annually thereafter. CalRecycle is required to develop strategies, including source reduction.

California Building Energy Efficiency Standards

California Code of Regulations (CCR) Title 24 Part 6: California's Building Energy Efficiency Standards for Residential and Nonresidential Buildings were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. Energy-efficient buildings require less electricity, natural gas, and other fuels. Electricity production from fossil fuels and on-site fuel combustion (typically for water heating) results in GHG emissions.

The Title 24 standards are updated approximately every three years to allow consideration and possible incorporation of new energy efficiency technologies and methods. The 2016 update to the Title 24 standards went into effect on January 1, 2017. The 2016 update to the Building Energy Efficiency Standards focused on several key areas to improve the energy efficiency of newly constructed buildings and additions and alterations to existing buildings. The most significant efficiency improvements to the residential standards included improvements for attics, walls, water heating, and lighting.

The 2019 Building Energy Efficiency Standards that will be in effect on January 1, 2020, move toward cutting energy use in new homes by more than 50 percent and will require installation of solar photovoltaic systems for single-family homes and multifamily buildings of three stories and less. The 2019 standards focus on four key areas: 1) smart residential photovoltaic systems; 2) updated thermal envelope standards (preventing heat transfer from the interior to exterior and vice versa); 3) residential and nonresidential ventilation requirements; 4) and nonresidential lighting requirements (CEC 2018a). Under the 2019 standards, nonresidential buildings will be 30 percent more energy efficient compared to the 2016 standards, and single-family homes will be 7 percent more energy efficient (CEC 2018b). When accounting for the electricity generated by the solar photovoltaic system, single-family homes would use 53 percent less energy compared to homes built to the 2016 standards (CEC 2018b).

CALIFORNIA GREEN BUILDING STANDARDS CODE

The California Green Building Standards Code (CALGreen; CCR Title 24, Part 11) is a code with mandatory requirements for new residential and nonresidential buildings (including industrial buildings) throughout California. The current 2016 CALGreen standards for new construction of, and additions and alterations to, residential and nonresidential buildings went into effect on January 1, 2017.

The implementation of CALGreen is intended to (1) cause a reduction in GHG emissions from buildings; (2) promote environmentally responsible, cost-effective, healthier places to live and work; (3) reduce energy and water consumption; and (4) respond to the directives by the Governor.

CALGreen contains requirements for storm water control during construction; construction waste reduction; indoor water use reduction; material selection; natural resource conservation; site irrigation conservation; and more. The code provides for design options allowing the designer to determine how best to achieve compliance for a given site or building condition. The code also requires building commissioning, which is a process for the verification that all building systems, like heating and cooling equipment and lighting systems, are functioning at their maximum efficiency.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

Pursuant to the requirements of SB 97, the Resources Agency has adopted amendments to the State *CEQA Guidelines* for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted *CEQA Guidelines* provide general regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents, while giving lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHGs and climate change impacts. To date, a variety of air districts have adopted quantitative significance thresholds for GHGs.

For more information on the Senate and Assembly Bills, Executive Orders, and reports discussed above, and to view reports and research referenced above, please refer to the following websites: www.climatechange.ca.gov and www.arb.ca.gov/cc/cc.htm.

Local Regulations

UNINCORPORATED LOS ANGELES COUNTY COMMUNITY CLIMATE ACTION PLAN

The County adopted the Community Climate Action Plan (CCAP) in August 2015 (County 2015). The CCAP, which is a component of the County General Plan, sets a target to reduce GHG emissions from community activities in the unincorporated areas of Los Angeles County by at least 11 percent below 2010 levels by 2020. The CCAP describes the County's plan for achieving this goal, including specific strategy areas for each of the major emission sectors, and provides details on the 2010 and projected 2020 emissions in the unincorporated areas. The actions in the CCAP are priority actions and intended for near-term implementation, such that the County can achieve its GHG reduction goal for 2020 for the unincorporated areas of Los Angeles County. The CCAP includes 26 local actions to reduce GHG emissions, grouped into five strategy areas: green building and energy; land use and transportation; water conservation and wastewater; waste reduction, reuse, and recycling; and land conservation and tree planting.

HACIENDA HEIGHTS COMMUNITY PLAN

The project site is located in the Hacienda Heights Community Plan (Los Angeles County DRP 2011). Policies in the plan related to air quality and GHGs include:

- Policy C 4.4: Encourage efforts to reduce greenhouse gas emissions and promote air resource management best practices.
- Goal C 5: A community that is energy-efficient, reduces energy and natural resource consumption, and reduces emissions of greenhouse gases.
- Policy C 5.1: Support the county's efforts to create an adopted Climate Action Plan by 2015 that meets state requirements and includes emission inventories, enforceable reduction measures, regular progress reviews, procedures for reporting on and revising the plan, and provides for resources to implement the Plan.

The Hacienda Heights Community Plan also contains various mitigation measures for air quality and GHGs to be implemented when a project results in significant impacts to these impact areas.

3 Impact Analysis

3.1 Methodology

Criteria pollutant and GHG emissions for project construction and operation were calculated using the California Emissions Estimator Model (CalEEMod), Version 2016.3.2. CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operations from a variety of land use projects. The model was developed for CAPCOA in collaboration with the California air districts. CalEEMod allows for the use of default data (e.g., emission factors, trip lengths, meteorology, source inventory) provided by the various California air districts to account for local requirements and conditions, and/or user-defined inputs. The model calculates emissions of CO, PM_{10}, $PM_{2.5}$, SO_2, the ozone precursors, ROG and NO_X, and GHGs, CO_2, N_2O, and CH_4, reported as CO_2e. The calculation methodology and input data used in CalEEMod can be found in the CalEEMod User's Guide Appendices A, D, and E (CAPCOA 2017). The input data and subsequent construction and operation emission estimates for the proposed project are discussed below. CalEEMod output files for the project are included in Appendix A to this report.

Construction Emissions

Project construction would primarily generate temporary criteria pollutant and GHG emissions from construction equipment operation on-site, construction worker vehicle trips to and from the site, and from export of materials off-site. Construction input data for CalEEMod include but are not limited to: (1) the anticipated start and finish dates of construction activity; (2) inventories of construction equipment to be used; (3) areas to be excavated and graded; and (4) volumes of materials to be exported from and imported to the project site. The analysis assessed maximum daily emissions from individual construction activities, including site preparation, grading, building construction, paving, and architectural coating. Construction would require heavy equipment during site preparation, grading, building construction, and paving. Construction equipment estimates are based on CalEEMod defaults. The construction start and end dates (estimated to begin in June 2022and to be completed by December 2023) and beginning of occupancy date (2024) were inputted into the model to determine the length of each construction phase. The default construction length for grading of 30 days was expanded to 90 days to accommodate the amount of soil export that would occur under grading. The building construction length was shortened from 300 days to 270 days to accommodate this lengthened grading period.

Construction of the following buildings and their CalEEMod land use types and subtypes were assumed:

- Buildings G, H, I (Dormitories)
  - Eight buildings totaling 37,948 sf
  - Land Use Type: Residential
  - Land Use Subtype: Congregate Care
- Buildings A, B, C1, C2, D, E, and F (Main Hall, Cafeteria and Tea Room, Small Meditation Halls, Classroom Building, Multifunction Halls)

- Nine buildings totaling 100,405 sf
- Land Use Type: Education
- Land Use Subtype: Place of Worship

- Underground Parking (7 levels)
  - Area totaling 122,297 sf
  - Land Use Type: Parking
  - Land Use Subtype: Enclosed Parking with Elevator

- Driveway, parking areas, outdoor concrete amphitheaters
  - Area totaling 133,796 sf
  - Land Use Type: Parking
  - Land Use Subtype: Other Asphalt Surfaces

- Landscape area
  - Area totaling 375,923 sf
  - Land Use Type: Recreational
  - Land Use Subtype: City Park

Approximately 9.78 acres of the site would be left undeveloped as open space. Approximately 91,056 cubic yards of soil would be exported from the project site. Based on the default CalEEMod assumption that haul trucks have a 16-cubic yard capacity, excavation would require 11,382 one-way haul trips (5,691 loaded truck trips leaving the site, and 5,691 empty truck trips returning to the site).

The quantity, duration, and the intensity of construction activity influence the amount of construction emissions and their related pollutant concentrations that occur at any one time. The emission forecasts modeled for this report reflect conservative assumptions where a relatively large amount of construction is occurring in a relatively intensive manner. Because of this conservative assumption, actual emissions could be less than those forecasted. If construction is delayed or occurs over a longer time period, emissions could be reduced because of (1) a more modern and cleaner-burning construction equipment fleet mix than assumed in the CalEEMod, and/or (2) a less intensive buildout schedule (i.e., fewer daily emissions occurring over a longer time interval). A complete listing of the assumptions used in the analysis and model output is provided in Appendix A of this report.

CalEEMod has the capability to calculate reductions in construction emissions from the effects of dust control, diesel-engine classifications, and other selected emissions reduction measures. Emissions calculations assume application of water during grading and a 15 mph speed limit on unpaved surfaces in compliance with SCAQMD Rule 403, Fugitive Dust (as detailed in Section 1, *Project Description and Impact Summary*). Based on CalEEMod version 2016.3.2, the PM_{10} and $PM_{2.5}$ reduction for watering two times per day is 55 percent.

Per SCAQMD Guidance, total construction GHG emissions resulting from the project are amortized over 30 years and added to operational GHG emissions.

Operational Emissions

In CalEEMod, operational sources of criteria pollutant emissions include area, energy, and mobile sources; GHG emissions include water and solid waste sources in addition to area, energy, and mobile sources.

Energy Sources

Emissions from energy use include electricity and natural gas use. The emissions factors for natural gas combustion are based on EPA's AP-42 (*Compilation of Air Pollutant Emissions Factors*) and CCAR General Reporting Protocol. Electricity emissions only apply to GHG emissions (as the energy is generated far off-site and therefore may not be relevant for local and regional air quality conditions) and are calculated by multiplying the energy use times the carbon intensity of the utility district per kilowatt hour (CAPCOA 2017). The default electricity consumption values in CalEEMod include the California Energy Commission [CEC]-sponsored California Commercial End Use Survey (CEUS) and Residential Appliance Saturation Survey (RASS) studies. CalEEMod currently incorporates California's 2016 Title 24 building energy efficiency standards; as described under Regulatory Framework, the 2019 Title 24 standards will be in effect on January 1, 2020. As the project is planned for construction beginning in 2022, with an operational date of 2024, it would be subject to the 2019 Title 24 standards. According to the CEC, single-family homes built with the 2019 standards will use about 7 percent less energy due to energy efficiency measures versus those built under the 2016 standards, or 53 percent less energy with rooftop solar (CEC 2018b). Nonresidential buildings will use about 30 percent less energy due mainly to lighting upgrades (CEC 2018b). The project includes both nonresidential components and residential (dormitory) components; as CalEEMod only allows for a general reduction in energy use compared to the 2016 Title 24 standards, a 7 percent reduction was conservatively inputted into the model for the project's energy use.

Area Sources

Emissions associated with area sources, including consumer products, landscape maintenance, fireplaces, and architectural coating were calculated in CalEEMod and utilize standard emission rates from CARB, U.S. EPA, and emission factor values provided by the local air district (CAPCOA 2017). While it is not anticipated that the project would have fireplaces, as final project design is still under review, it was conservatively assumed that the project would have natural gas fireplaces; as per SCAQMD Rule 445, no wood-burning fireplaces are permitted in the SCAB.

Waste Sources

GHG emissions from waste generation were also calculated in CalEEMod and are based on the IPCC's methods for quantifying GHG emissions from solid waste using the degradable organic content of waste (CAPCOA 2017). Waste disposal rates by land use and overall composition of municipal solid waste in California was primarily based on data provided by the California Department of Resources Recycling and Recovery (CalRecycle). This analysis assumes that the countywide average already accounts for the 50 percent diversion requirement from AB 75. In 2012, the State legislature enacted AB 341, increasing the diversion target to 75 percent statewide by 2020. Therefore, a 25 percent diversion rate over the countywide average was applied to the project in this analysis.

Water and Wastewater Sources

GHG emissions from water and wastewater usage calculated in CalEEMod were based on the default electricity intensity from the CEC's 2006 Refining Estimates of Water-Related Energy Use in California using the average values for northern and southern California. A 20 percent reduction in indoor potable water use was incorporated in the model in accordance with CALGreen standards (International Code Council 2017).

Mobile Sources

Mobile source emissions are generated by the increase in vehicle trips to and from the project site associated with operation of onsite development. Proposed project traffic generation rates from the Traffic Impact Analysis prepared by Linscott Law & Greenspan Engineers (LLG 2019) were inputted into CalEEMod. The traffic analysis included two traffic scenarios: typical conditions and special event conditions. The special event conditions accounted for the traffic generated by a special event in addition to traffic generated under typical conditions; therefore, this more conservative scenario was used in modeling.

Nitrous Oxide Emissions

Because CalEEMod does not calculate N_2O emissions from mobile sources, N_2O emissions were quantified using guidance from CARB (CARB 2013; see Appendix A for calculations), which states the following:

- For gasoline vehicles, use 4.16 percent of NO_x emissions (from CalEEMod) to calculate N_2O for all gasoline vehicles; and
- For diesel vehicles, use 0.3316 grams of NO_x per gallon fuel used.

CalEEMod does not list the percentage breakdown of gasoline and diesel vehicles used in the model's fleet mixes. To determine this percentage, EMFAC2014 Emissions Inventory were obtained in a spreadsheet output for the Los Angeles County region, for the project's operational year, using EMFAC2011 categories (CARB 2019b). The vehicle population totals for gasoline and for diesel vehicles were separately summed, and the total for each was divided by the overall total vehicles to determine their percentage.

The percentage of gasoline vehicles was then multiplied by the NO_X emissions output from CalEEMod. This result was then multiplied by the aforementioned 4.16 percent and converted to MT to result in MT of N_2O per year from gasoline vehicles. For diesel vehicles, the miles per gallon for diesel vehicles was obtained from the EMFAC2014 spreadsheet by dividing the VMT by fuel consumption for each diesel vehicle type, then averaging the miles per gallon for all diesel vehicle types. The miles per gallon was then converted to MT of N_2O per year for diesel vehicles through the aforementioned grams of N_2O per gallon and the yearly VMT (multiplied by the percentage of diesel vehicles compared to total vehicles).

Finally, the MT of N_2O per year for gasoline and diesel vehicles were added together and converted into CO_2e by using the GWP of N_2O of 298 (IPCC 2007), and then added to the mobile source emissions for CO_2 and CH_4 outputted in CalEEMod.

3.2 Significance Thresholds

Air Quality

To determine whether a project would result in a significant impact to air quality, Appendix G of the *CEQA Guidelines* requires consideration of whether a project would:

1. Conflict with or obstruct implementation of the applicable air quality plan
2. 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 ambient air quality standard
3. Expose sensitive receptors to substantial pollutant concentrations
4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people

Regional Significance Thresholds

The SCAQMD recommends quantitative regional significance thresholds for temporary construction activities and long-term project operation in the SCAB, shown in Table 4.

Table 4 SCAQMD Regional Significance Thresholds

Construction Thresholds	Operational Thresholds
75 pounds per day of ROG	55 pounds per day of ROG
100 pounds per day of NO_X	55 pounds per day of NO_X
550 pounds per day of CO	550 pounds per day of CO
150 pounds per day of SO_X	150 pounds per day of SO_X
150 pounds per day of PM_{10}	150 pounds per day of PM_{10}
55 pounds per day of $PM_{2.5}$	55 pounds per day of $PM_{2.5}$

Source: SCAQMD 2015

Localized Significance Thresholds

In addition to the above regional thresholds, the SCAQMD has developed Localized Significance Thresholds (LSTs) in response to the Governing Board's Environmental Justice Enhancement Initiative (1-4), which was prepared to update the *CEQA Air Quality Handbook* (1993). LSTs were devised in response to concern regarding exposure of individuals to criteria pollutants in local communities and have been developed for NO_X, CO, PM_{10}, and $PM_{2.5}$. LSTs represent the maximum emissions from a project that will not cause or contribute to an air quality exceedance of the most stringent applicable federal or state ambient air quality standard at the nearest sensitive receptor, taking into consideration ambient concentrations in each source receptor area (SRA), distance to the sensitive receptor, and project size. LSTs have been developed for emissions within construction areas up to five acres in size. However, LSTs only apply to emissions in a fixed stationary location and are not applicable to mobile sources, such as cars on a roadway (SCAQMD 2008). As such, LSTs are typically applied only to construction emissions because the majority of operational emissions are associated with project-generated vehicle trips.

The SCAQMD provides LST lookup tables for project sites that measure one, two, or five acres. If a site is greater than five acres, SCAQMD recommends a dispersion analysis be performed. Project construction would disturb a total area of approximately 19 acres. The actual area being disturbed at any one time would be less, as construction would be focused on a specific portion of the project site and the entire site area would not be worked at any one time. Based upon prior observations experience with construction projects, it is assumed to be disturbing a maximum area of five acres at any one time. Therefore, this analysis utilizes the five-acre LSTs.

LSTs are provided for receptors at a distance of 82 to 1,640 feet from the project disturbance boundary to the sensitive receptors. Construction activity would occur approximately 25 feet south of the closest sensitive receptor, which is a single-family residential property. According to the SCAQMD's publication, *Final LST Methodology*, projects with boundaries located closer than 82 feet to the nearest receptor should use the LSTs for receptors located at 82 feet. Therefore, the analysis below uses the LST values for 82 feet.

The project is located in SRA-11 (South San Gabriel Valley). LSTs for construction in SRA-11 on a 5-acre site with a receptor 82 feet away are shown in Table 5.

Table 5 SCAQMD LSTs for Construction (SRA 11)

Pollutant	Allowable Emissions for a 5-acre Site in SRA 11 for a Receptor 82 Feet Away (lbs/day)
Gradual conversion of NO_X to NO_2	183
CO	1,814
PM_{10}	14
$PM_{2.5}$	9
Source: SCAQMD 2009	

Greenhouse Gas Emissions

Based on Appendix G of the *CEQA Guidelines*, impacts related to GHG emissions from the project would be significant if the project would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases

The vast majority of individual projects do not generate sufficient GHG emissions to directly influence climate change. However, physical changes caused by a project can contribute incrementally to cumulative effects that are significant, even if individual changes resulting from a project are limited. The issue of climate change typically involves an analysis of whether a project's contribution towards an impact would be cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (*CEQA Guidelines*, Section 15064[h][1]).In guidance provided by the SCAQMD's GHG CEQA Significance Threshold Working Group in September 2010, SCAQMD considered a tiered approach to determine the significance of residential and commercial projects. The draft tiered approach is outlined in meeting minutes dated September 29, 2010 (SCAQMD 2010):

- **Tier 1.** If the project is exempt from further environmental analysis under existing statutory or categorical exemptions, there is a presumption of less than significant impacts with respect to climate change. If not, then the Tier 2 threshold should be considered.
- **Tier 2.** Consists of determining whether or not the project is consistent with a GHG reduction plan that may be part of a local general plan, for example. The concept embodied in this tier is equivalent to the existing concept of consistency in *CEQA Guidelines* section 15064(h)(3), 15125(d) or 15152(a). Under this Tier, if the proposed project is consistent with the qualifying local GHG reduction plan, it is not significant for GHG emissions. If there is not an adopted plan, then a Tier 3 approach would be appropriate.
- **Tier 3.** Establishes a screening significance threshold level to determine significance. The Working Group has provided a recommendation of 3,000 metric tons (MT) of CO2e per year for mixed use projects.
- **Tier 4.** Establishes a service population threshold to determine significance. The Working Group has provided a recommendation of 4.8 MT of CO2e per year for land use projects.

The County has a qualified GHG reduction plan, the CCAP; however, the CCAP's reductions only extend to 2020. Therefore, the County does not have a GHG reduction plan that applies to the project's estimated operational year of 2023, and Tier 2 would not apply to the project. In addition, the Tier 3 and Tier 4 thresholds have not been formally adopted by the SCAQMD; therefore, these thresholds would not apply to the project.

In the absence of any adopted, quantitative thresholds of significance, the project's GHG emissions would be considered less than significant if there is substantial evidence to support the finding that the project is substantially consistent with applicable qualified greenhouse gas reduction plans. CARB's 2017 Scoping Plan and SCAG's 2016 RTP/SCS would be considered applicable greenhouse gas reduction plans; therefore, project consistency with the plans is used to determine significance.

3.3 Impact Analysis

Air Quality

CEQA Appendix G Air Quality Threshold 1
Conflict with or obstruct implementation of the applicable air quality plan *(Less Than Significant)*.

A project may be inconsistent with the AQMP if it would generate population, housing, or employment growth exceeding forecasts used in the development of the AQMP. The 2016 AQMP, the most recent AQMP adopted by the SCAQMD, incorporates local city general plans and the SCAG's 2016 RTP/SCS socioeconomic forecast projections of regional population, housing, and employment growth.

A project may be inconsistent with the AQMP if it would generate population, housing, or employment growth exceeding forecasts used in the development of the AQMP. SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties, and addresses regional issues relating to transportation, economy, community development, and environment. With regard to air quality planning, SCAG has prepared the 2016 RTP/SCS, a long-range transportation plan that uses growth forecasts to project trends for regional population, housing and employment growth out to 2040 to identify regional transportation strategies to address mobility needs. These growth forecasts form the basis for the land use and transportation control portions of the 2016 AQMP.

The updated growth forecasts in SCAG's 2016 RTP/SCS estimate that the population of the unincorporated County will be 1,273,700 in 2040, an increase of 233,000 people from a population of 1,040,700 in 2012. The proposed project would involve the development of the Hsi Lai Monastery site, including several dormitories. The dormitories would provide accommodation for approximately 68 people. This increase in population would be within the SCAG's projected 2040 population increase of 233,000 from 2012, and the project would not cause the County to exceed official regional population projections.

The employment growth forecasts in SCAG's 2016 RTP/SCS estimate that the total number of jobs would increase from 222,900 in 2012 to 288,400 in 2040, for an increase of 65,500 jobs. The project would provide six full-time jobs (LLG 2019). This minor increase in employment would be within the SCAG's projected 2040 employment increase of 65,500 jobs from 2012, and the project would not cause the County to exceed official regional employment projections.

The household growth forecasts in SCAG's 2016 RTP/SCS estimate that the total number of households would increase from 292,700 in 2012 to 392,400 in 2040, for an increase of 99,700 households. The project would potentially have up to 32 monks living full time at the monastery, with 36 beds for short-term visitors, which is conservatively assumed to result in up to 68 new households. This minor increase in households would be within the SCAG's projected 2040 household increase of 99,700 from 2012, and the project would not cause the County to exceed official regional household projections.

In addition to the project's consistency with applicable population, employment, and household growth projections, the AQMP provides strategies and measures to reach attainment with the thresholds for 8-hour and 1-hour ozone and $PM_{2.5}$. As shown in Tables 6 and 7, below, the project would not generate criteria pollutant emissions that would exceed SCAQMD thresholds for ozone precursors (ROG and NO_X) and $PM_{2.5}$. Since the project's population, employment, and household growth would be within SCAG 2016 RTP/SCS forecasts, the project would be consistent with the AQMP, and impacts would be less than significant.

CEQA Appendix G Air Quality Threshold 2
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 ambient air quality standard *(Less Than Significant)*.

In accordance with *CEQA Guidelines* Section 15064(h)(3), the SCAQMD's approach for assessing cumulative impacts is based on the AQMP forecasts of attainment of ambient air quality standards in accordance with the requirements of the federal and State Clean Air Acts. If the project's mass regional emissions do not exceed the applicable SCAQMD, then the project's criteria pollutant emissions would not be cumulatively considerable.

Construction

Table 6 summarizes the estimated maximum daily emissions (lbs) of pollutants associated with construction of the proposed project. As shown below, ROG, NO_X, CO, SO_2, PM_{10}, and $PM_{2.5}$ emissions would not exceed SCAQMD regional thresholds or LSTs. Because the project would not exceed SCAQMD's regional construction thresholds or LSTs, project construction would not result in a cumulatively considerable net increase of a criteria pollutant, and impacts would be less than significant.

Table 6 Project Construction Emissions

	Maximum Emissions (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Construction Year 2022	5.0	70.7	38.0	0.2	10.0	6.0
Construction Year 2023	62.4	23.7	28.9	0.1	5.0	1.8
Maximum Emissions	62.4	70.7	38.0	0.2	10.0	6.0
SCAQMD Regional Thresholds	75	100	550	150	150	55
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**
Maximum On-site Emissions	62.0	38.8	29.0	< 0.1	9.7	6.0
SCAQMD Localized Significance Thresholds (LSTs)	N/A	183	1,814	N/A	14	9
Threshold Exceeded?	**N/A**	**No**	**No**	**N/A**	**No**	**No**

Notes: Emissions modeling was completed using CalEEMod. See Appendix A for modeling results. Some numbers may not add up due to rounding. Emission data is pulled from “mitigated” results, which account for compliance with regulations and project design features. Maximum on-site emissions are the highest emissions that would occur on the project site from on-site sources such as heavy construction equipment and architectural coatings and excludes off-site emissions from sources such as construction worker vehicle trips and haul truck trips.

Operational

Table 7 summarizes the project’s operational emissions by emission source (area, energy, or mobile). As shown below, the emissions generated by operation of the proposed project would not exceed SCAQMD regional thresholds for criteria pollutants. Therefore, the project would not contribute substantially to an existing or projected air quality violation. In addition, because criteria pollutant emissions and regional thresholds are cumulative in nature, the project would not result in a cumulatively considerable net increase of criteria pollutants.

Table 7 Project Operational Emissions

	Maximum Daily Emissions (lbs/day)					
Emission Source	**ROG**	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Area	3.2	0.1	0.7	<0.1	<0.1	<0.1
Energy	0.1	0.5	0.4	<0.1	<0.1	<0.1
Mobile	0.9	4.1	11.1	<0.1	3.5	1.0
Project Emissions	4.2	4.7	12.2	<0.1	3.5	1.0
SCAQMD Regional Thresholds	55	55	550	150	150	55
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Notes: Emissions modeling was completed using CalEEMod. See Appendix A for modeling results. Some numbers may not add up due to rounding. Emission data is pulled from “mitigated” results that include compliance with regulations and project design features that would be included in the project.

CEQA Appendix G Air Quality Threshold 4
Expose sensitive receptors to substantial pollutant concentrations *(Less Than Significant)*.

Toxic Air Contaminants

Construction activities associated with the proposed project would be sporadic, transitory, and short term in nature. The greatest potential for TAC emissions during construction would be related to diesel particulate matter (DPM) associated with heavy equipment operations during earth-moving activities, which are estimated to last approximately four months. The assessment of cancer risk is typically based on a 30-year exposure duration. Because exposure to diesel exhaust would be well below 30 years, construction of the proposed project is not anticipated to result in an elevated cancer risk to exposed persons due to the short-term nature of construction. As such, project-related TAC emission impacts during construction would be less than significant.

As a monastery site that holds special events, the project would not be a type of land use that would generate operational TACs (which typically include commercial or industrial uses such as dry cleaners, factories, and refineries), and therefore no impacts would occur.

CO Hot Spots

A carbon monoxide (CO) hotspot is a localized concentration of CO that is above a CO ambient air quality standard. Localized CO hotspots can occur at intersections with heavy peak hour traffic. Specifically, hotspots can be created at intersections where traffic levels are sufficiently high such that the local CO concentration exceeds the federal one-hour standard of 35.0 ppm or the federal and state eight-hour standard of 9.0 ppm (CARB 2016).

A detailed CO analysis was conducted during the preparation of SCAQMD’s 2003 AQMP. The locations selected for microscale modeling in the 2003 AQMP included high average daily traffic (ADT) intersections in the SCAB, those which would be expected to experience the highest CO concentrations. The highest CO concentration observed was at the intersection of Wilshire Boulevard and Veteran Avenue on the west side of Los Angeles near the I-405 Freeway. The concentration of CO at this intersection was 4.6 ppm, which is well below the state and federal standards. The Wilshire Boulevard/Veteran Avenue intersection has an ADT of approximately 100,000 vehicles per day.

The total ADT for the nearest major intersection to the proposed project, Colima Road/South Hacienda Boulevard, was measured at 26,168 vehicles in 2010 (Los Angeles County Department of Public Works 2019), which is far less than the 100,000 vehicle count on the Wilshire Boulevard/Veteran Avenue intersection that was already well below the standards. In addition, the proposed project would only add approximately 662 weekday trips overall (LLG 2019). Furthermore, due to stricter vehicle emissions standards in newer cars and new technology that increases fuel economy, CO emission factors under future land use conditions would be lower than those under existing conditions. Thus, even though there would be more vehicle trips under the proposed project than under existing conditions, project-generated local mobile-source CO emissions would not result in or substantially contribute to concentrations that exceed the one-hour or eight-hour CO standard. Therefore, impacts would be less than significant.

CEQA Appendix G Air Quality Threshold 5
Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people *(Less Than Significant)*.

For construction activities, odors would be short-term in nature and are subject to SCAQMD Rule 402 *Nuisance* (CARB 2018a). Construction activities would be temporary and transitory and associated odors would cease upon construction completion. Accordingly, the proposed project would not create objectionable odors affecting a substantial number of people during construction, and short-term impacts would be less than significant.

Common sources of operational odor complaints include sewage treatment plants, landfills, recycling facilities, and agricultural uses. The proposed project, a monastery, would not include any of these uses. In addition, solid waste generated by the proposed on-site uses would be stored in required waste/recycling receptacles and collected by a contracted waste hauler, ensuring that odors resulting from on-site waste would be managed and collected in a manner to prevent the proliferation of odors. Therefore, operational odor impacts would be less than significant.

Greenhouse Gas Emissions

CEQA Appendix G Greenhouse Gas Emissions Threshold 1
Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment *(Less Than Significant)*.

CEQA Appendix G Greenhouse Gas Emissions Threshold 2
Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases *(Less Than Significant)*.

Greenhouse Gas Emissions Inventory

This section estimates the proposed project's annual GHG emissions for informational purposes. Complete modeling results are included as Appendix A of this report.

CONSTRUCTION EMISSIONS

For the purpose of this analysis, it is assumed that construction activity would begin June 2022 with completion by the end of 2023. As shown in Table 8, construction activity for the project would generate an estimated 1,829.0 MT of CO_2e. When amortized over a 30-year period, construction of the project would generate 61.0 MT of CO_2e per year.

Table 8 Estimated Construction Emissions of Greenhouse Gases

Construction Year	Annual Emissions MT CO_2e
2022	922.5
2023	906.5
Total	1,829.0
Amortized over 30 years	61.0

Notes: Emissions modeling was completed using CalEEMod. See Appendix A for modeling results. Some numbers may not add up due to rounding. Emission data is pulled from "mitigated" results that include compliance with regulations and project design features that would be included in the project.

OPERATIONAL AND TOTAL PROJECT EMISSIONS

Table 9 combines the construction and operational GHG emissions associated with development of the project. As shown, annual emissions from the proposed project would be 1,715.9 MT of CO_2e.

Table 9 Combined Annual Emissions MT CO2e/year

Emission Source	Annual Emissions MT CO_2e
Construction	61.0
Operational	
Area	1.8
Energy	678.0
Mobile	671.9
N_2O (Mobile)	13.0
Solid Waste	218.9
Water	71.3
Net Total	**1,715.9**

Notes: Emissions modeling was completed using CalEEMod, except for N_2O mobile emissions. See Appendix A for modeling results and N_2O emissions calculations. Some numbers may not add up due to rounding. Emission data is pulled from "mitigated" results that include compliance with regulations and project design features that would be included in the project.

Greenhouse Gas Emissions Impacts

There are numerous state plans, policies, and regulations adopted for the purpose of reducing GHG emissions. The principal state plan and policy is AB 32, the California Global Warming Solutions Act of 2006, and the follow up, SB 32. The quantitative goal of AB 32 is to reduce GHG emissions to 1990 levels by 2020 and the goal of SB 32 is to reduce GHG emissions to 40 percent below 1990 levels by 2030. Per the SB 32 goal, the 2017 Scoping Plan was created to outline goals and measures for the state to achieve the reductions. The project's consistency with the 2017 Scoping Plan is analyzed in Table 10. As shown in Table 10, the project is consistent with the applicable GHG reduction strategies in the 2017 Scoping Plan.

Table 10 Consistency with Applicable 2017 Scoping Plan Greenhouse Gas Reduction Strategies

Strategy/Action	Project Consistency
Low Carbon Energy	
a. Reduce fossil fuel use b. Reduce energy demand	**Consistent.** The monastery would be developed within 0.5 mile of the nearest bus stop at Colima Road and South Hacienda Boulevard. In addition, the senior monastics that would be using the monastery dormitories do not drive and would not own personal cars, and are anticipated to generally remain on-site. They would have access to ride-sharing to and from the monastery. The TIA estimates this would reduce trips from these occupants by 50 percent (LLG 2019). This would reduce fossil fuel use. In addition, the design and implementation of the proposed project would comply with 2019 Title 24 building standards, which include measures to reduce energy demand compared to the previous standards, such as updating indoor and outdoor lighting making maximum use of LED technology and improving the building's thermal envelope performance.
Transportation Sustainability	
a. Promote feasible policies to reduce VMT, including increasing low carbon mobility choices, including improved access to viable and affordable public transportation and active transportation opportunities. b. Promote shared-use mobility, such as bike sharing, car sharing and ride-sourcing services to bridge the "first mile, last mile" gap between commuters' transit stops and their destinations	**Consistent.** The monastery would be developed within 0.5 mile of the nearest bus stop at Colima Road and South Hacienda Boulevard. In addition, the senior monastics that would be using the monastery dormitories do not drive and would not own personal cars, and are anticipated to generally remain on-site. They would have access to ride-sharing to and from the monastery. The TIA estimates this would reduce trips from these occupants by 50 percent, thereby reducing VMT (LLG 2019).
Waste Management	
a. Maximize recycling and diversion from landfills.	**Consistent.** The project would be consistent with AB 341, which results in a waste diversion rate of 75 percent.

Source: CARB 2017

The County adopted the CCAP in 2015 to implement GHG reduction strategies from unincorporated County communities to at least 11 percent below 2010 levels by 2020. The project's construction and operation would occur after the covered timeline of the CCAP and the project would not tier from the CCAP, and the County has not prepared a CCAP post-2020. However, the project's consistency with applicable CCAP GHG reduction strategies goals is still analyzed in Table 11. As shown in Table 11, the project is consistent with the applicable GHG reduction strategies in the County's CCAP.

Table 11 Consistency with Applicable County Community Climate Action Plan Greenhouse Gas Reduction Strategies

Strategy/Action	Project Consistency
Land Use and Transportation	
LUT-4, Travel Demand Management. Encourage ride- and bike-sharing programs and employer-sponsored vanpools and shuttles. Encourage market-based bike sharing programs that support bicycle use around and between transit stations/hubs. Implement marketing strategies to publicize these programs and reduce commute trips	**Consistent.** The project would use a ride-sharing vehicle for the senior monastics.
LUT-6, Land Use Design and Density. Promote sustainability in land use design, including diversity of urban and suburban developments. This action includes approaches that encourage transit-oriented districts (TODs), infill development, pedestrian-friendly and community-serving uses near transit stops, and increased transit use.	**Consistent.** The monastery would be developed within 0.5 mile of the nearest bus stop at Colima Road and South Hacienda Boulevard. The senior monastics that would be using the monastery dormitories do not drive and would not own personal cars, and are anticipated to generally remain on-site. They would have access to ride-sharing to and from the monastery. The TIA estimates this would reduce trips from these occupants by 50 percent (LLG 2019).
LUT-9, Idling Reduction Goal. Encourage idling limits of three minutes for heavy-duty construction equipment, as feasible within manufacturer's specifications.	**Consistent.** Section 2485 in Title 13 of the California Code of Regulations limits the idling of all diesel-fueled commercial vehicles (weighing over 10,000 pounds) during construction to five minutes at any location. The project shall comply with this regulatory requirement and would encourage construction contractors to further limit idling to three minutes or less when practicable and feasible.
Land Conservative and Tree Planting	
LC-1, Develop Urban Forests. Support and expand urban forest programs within the unincorporated areas.	**Consistent.** The project would develop the existing hillside, mostly containing grasses and shrubs, and implement landscaping on the site that would include various trees to complement the connection between the monastery and nature. In addition, the portions of the site on which mature oaks trees are found would be largely preserved.
LC-2, Create New Vegetated Open Space. Restore and revegetate previously disturbed land and/or unused urban and suburban areas. This action promotes the conversion of unused urban and suburban areas to parks and forests.	**Consistent.** Approximately 10 acres of the site would be preserved as undeveloped open space. In addition, the project site contains oak tree communities. The proposed landscape plan includes the planting of oak trees in the southern portion of the site, along the new multi-use trail, to replace those that would be lost due to the monastery buildings.
LC-4, Protect Conservation Areas. Encourage the protection of existing land conservation areas.	**Consistent.** Approximately 10 acres of the site would be preserved as undeveloped open space. In addition, the project site contains oak tree communities. The proposed landscape plan includes the planting of oak trees in the southern portion of the site, along the new multi-use trail, to replace those that would be lost due to the monastery buildings.

Strategy/Action	Project Consistency
Waste Reduction, Reuse, and Recycling	
SW-1, Waste Diversion Goal. For the County's unincorporated areas, adopt a waste diversion goal to comply with all state mandates to divert at least 75% of waste from landfill disposal by 2020.	**Consistent.** The project would be consistent with AB 341, which results in a waste diversion rate of 75 percent.
Source: County 2015	

The project's consistency with applicable GHG policies in the Hacienda Heights Community Plan is shown in Table 12. As shown in Table 12, the project is consistent with the applicable GHG policies in the Hacienda Heights Community Plan.

Table 12 Consistency with Applicable Hacienda Heights Community Plan Greenhouse Gas Policies

Strategy/Action	Project Consistency
Policy C 4.4: Encourage efforts to reduce greenhouse gas emissions	**Consistent.** As described within this section, the project would be consistent with applicable GHG reduction plans and policies, such as the 2017 Scoping Plan and 2016 RTP/SCS, and would therefore be consistent with efforts to reduce GHG emissions.
Goal C 5: A community that is energy-efficient, reduces energy and natural resource consumption, and reduces emissions of greenhouse gases.	**Consistent.** As described within this section, the project would be consistent with applicable GHG reduction plans and policies, such as the 2017 Scoping Plan and 2016 RTP/SCS, and would therefore be consistent with efforts to reduce GHG emissions. In addition, the design and implementation of the proposed project would comply with 2019 Title 24 building standards, which include measures to reduce energy demand compared to the previous standards, such as updating indoor and outdoor lighting making maximum use of LED technology and improving the building's thermal envelope performance.
Policy C 5.1: Support the county's efforts to create an adopted Climate Action Plan by 2015 that meets state requirements and includes emission inventories, enforceable reduction measures, regular progress reviews, procedures for reporting on and revising the plan, and provides for resources to implement the Plan.	**Consistent.** As described above, the County's CCAP, which was created in 2015, would not be an applicable document for the project to tier off as the CCAP only is applicable up to 2020. However, as shown in Table 11, the project would nonetheless be consistent with CCAP policies.

Source: County 2011

Table 13 illustrates the project's consistency with relevant goals and strategies embodied in Chapter 5, *On the Road to Greater Mobility and Sustainable Growth*, of the 2016 RTP/SCS (SCAG 2016). As shown in Table 13, the project is consistent with the applicable strategies in the 2016 RTP/SCS.

Table 13 Consistency with Applicable SCAG RTP/SCS GHG Emission Reduction Strategies

Strategy/Action	Project Consistency
Land Use and Transportation	
Focus new growth around transit. The 2016 RTP/SCS land use pattern reinforces the trend of focusing growth in the region's High Quality Transit Areas (HQTAs). Concentrating housing and transit in conjunction concentrates roadway repair investments, leverages transit and active transportation investments, reduces regional life cycle infrastructure costs, improves accessibility, avoids greenfield development, and has the potential to improve public health and housing affordability. HQTAs provide households with alternative modes of transport that can reduce VMT and GHG emissions.	**Consistent.** The monastery would be developed within 0.5 mile of the nearest bus stop at Colima Road and South Hacienda Boulevard. The senior monastics that would be using the monastery dormitories do not drive and would not own personal cars, and are anticipated to generally remain on-site. They would have access to ride-sharing to and from the monastery. The TIA estimates this would reduce trips from these occupants by 50 percent (LLG 2019).
Plan for growth around livable corridors. The Livable Corridors strategy seeks to create neighborhood retail nodes that would be walking and biking destinations by integrating three different planning components: 1. Transit improvements 2. Active transportation improvements (i.e. improved safety for walking and biking) 3. Land use policies that include the development of mixed-use retail centers at key nodes and better integrate different types of ritual uses.	**Consistent.** The monastery would be developed within 0.5 mile of the nearest bus stop at Colima Road and South Hacienda Boulevard. The senior monastics that would be using the monastery dormitories do not drive and would not own personal cars, and are anticipated to generally remain on-site. They would have access to ride-sharing to and from the monastery. The TIA estimates this would reduce trips from these occupants by 50 percent (LLG 2019).
Provide more options for short trips. 38 percent of all trips in the SCAG region are less than three miles. The 2016 RTP/SCS provides two strategies to promote the use of active transport for short trips. Neighborhood Mobility Areas are meant to reduce short trips in a suburban setting, while "complete communities" support the creation of mixed-use districts in strategic growth areas and are applicable to an urban setting.	**Consistent.** The monastery would be developed within 0.5 mile of the nearest bus stop at Colima Road and South Hacienda Boulevard. The senior monastics that would be using the monastery dormitories do not drive and would not own personal cars, and are anticipated to generally remain on-site. They would have access to ride-sharing to and from the monastery. Project users would have access to public transit and alternative means of transportation would be available for access to and from the project site.
Protect Natural and Farm Lands. Many natural and agricultural land areas near the edge of existing urbanized areas do not have plans for conservation and they are susceptible to the pressures of development. Many of these lands, such as riparian areas, have high per-acre habitat values and are host to some of the most diverse yet vulnerable species that play an important role in the overall ecosystem.	**Consistent.** Approximately 10 acres of the site would be preserved as undeveloped open space.

Strategy/Action	Project Consistency
Transit Initiatives	
Develop first-mile/last-mile strategies on a local level to provide an incentive for making trips by transit, bicycling, walking, or neighborhood electric vehicle or other ZEV options.	**Consistent.** The monastery would be developed within 0.5 mile of the nearest bus stop at Colima Road and South Hacienda Boulevard. Therefore, project users would have access to public transit within walking distance of the site. In addition, the senior monastics would have access to the project's ride-sharing for access to and from the project site. This would allow for first-mile/last-mile not using single-occupancy vehicles.
Other Initiatives	
Reduce emissions resulting from a project through implementation of project features, project design, or other measures. Incorporate design measures to reduce energy consumption and increase use of renewable energy.	**Consistent** The design and implementation of the proposed project would comply with CALGreen Building Standards, which includes measures to reduce emissions. The project would also comply with SCAQMD Rule 1113 that limits ROGs from building architectural coatings.

Source: SCAG 2016

Given the aforementioned, the project is consistent with state and local policies for reducing GHG emissions, including the 2017 Scoping Plan, the County's CCAP, and 2016 RTP/SCS. Therefore, the project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, or conflict with plans, policies, or legislation related to GHG emissions. Impacts would be less than significant.

4 Conclusions and Recommendations

As detailed above, construction and operation of the project would not result in significant air quality or GHG emissions impacts. The project shall comply with the following RCMs:

Regulatory Compliance Measures

RCM-1 Demolition, Grading, and Construction Activities: Compliance with Provisions of SCAQMD Rule 403.

The project shall comply with all applicable standards of the Southern California Air Quality Management District (SCAQMD), including the following provisions and Best Available Control Measures of Rule 403:

- All unpaved demolition and construction areas shall be wetted at least twice daily during excavation and construction, and temporary dust covers shall be used to reduce dust emissions and meet SCAQMD Rule 403.
- The construction area shall be kept sufficiently dampened to control dust caused by grading and hauling, and at all times provide reasonable control of dust caused by wind.
- All clearing, earth moving, or excavation activities shall be discontinued during periods of high winds (i.e., greater than 15 mph), so as to prevent excessive amounts of dust.
- All dirt/soil shall be secured by trimming, watering, or other appropriate means to prevent spillage and dust.
- All dirt/soil materials transported off-site shall be either sufficiently watered or securely covered to prevent excessive amounts of dust.
- General contractors shall maintain and operate construction equipment so as to minimize exhaust emissions.
- Trucks having no current hauling activity shall not idle but be turned off.
- In addition, exposed surfaces shall be maintained at a minimum soil moisture of 12 percent and vehicle speeds shall be limited to 15 miles per hour on unpaved roads.

RCM-2 Engine Idling

In accordance with Section 2485 of Title 13 of the California Code of Regulations, the idling of all diesel-fueled commercial vehicles (weighing over 10,000 pounds) during construction shall be limited to five minutes at any location.

RCM-3 Emission Standards

In accordance with Section 93115 of Title 17 of the California Code of Regulations, operation of any stationary, diesel-fueled, compression-ignition engines shall meet specified fuel and fuel additive requirements and emission standards.

RCM-4 Architectural Coatings

The project shall comply with SCAQMD Rule 1113 limiting the volatile organic compound (VOC) content of architectural coatings.

RCM-5 Wood Burning Fireplaces

In accordance with SCAQMD Rule 445, no wood-burning devices (e.g., fireplaces) would be installed in the development.

5 References

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Appendix A

CalEEMod Output Files and N_2O Emissions Calculations

16-03582 Hsi Lai Temple

Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Place of Worship	100.41	1000sqft	2.30	100,405.00	0
Enclosed Parking with Elevator	122.30	1000sqft	2.81	122,297.00	0
Other Asphalt Surfaces	133.80	1000sqft	3.07	133,796.00	0
City Park	8.63	Acre	8.63	375,922.80	0
Congregate Care (Assisted Living)	8.00	Dwelling Unit	2.37	37,948.00	68

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 33

Climate Zone 9 **Operational Year** 2023

Utility Company Southern California Edison

CO2 Intensity (lb/MWhr) 702.44 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Project information from client; 28.96 total site acreage (19.18 acres shown in CalEEMod LU + 9.78 acres of site to be preserved as open space)

Construction Phase - Default construction length for grading of 30 days expanded to 90 days to accommodate the soil export under grading. The building construction length was shortened from 300 days to 270 days to accommodate this lengthened grading period.

Trips and VMT -

Grading - Based on revised site plans and client info (August/September 2019)

Vehicle Trips - Traffic volumes from TIA (LLG 2019); conservative scenario from TIA (special events + regular operation) used.

Woodstoves - Assumed all natural gas fireplaces

Construction Off-road Equipment Mitigation -

Area Mitigation -

Energy Mitigation - 2019 Title 24 will be applied to project

Water Mitigation - CalGREEN standards

Waste Mitigation - AB 341, 25 percent reduction for 2020 over 50 reduction already incorporated

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	30.00	90.00
tblConstructionPhase	NumDays	300.00	270.00
tblConstructionPhase	PhaseEndDate	7/26/2022	10/18/2022
tblConstructionPhase	PhaseEndDate	9/19/2023	10/31/2023
tblConstructionPhase	PhaseEndDate	10/17/2023	11/28/2023
tblConstructionPhase	PhaseEndDate	11/14/2023	12/26/2023
tblConstructionPhase	PhaseStartDate	7/27/2022	10/19/2022
tblConstructionPhase	PhaseStartDate	9/20/2023	11/1/2023
tblConstructionPhase	PhaseStartDate	10/18/2023	11/29/2023

tblFireplaces	NumberWood	0.40	0.00
tblGrading	AcresOfGrading	225.00	19.18
tblGrading	MaterialExported	0.00	91,056.00
tblLandUse	LandUseSquareFeet	100,410.00	100,405.00
tblLandUse	LandUseSquareFeet	122,300.00	122,297.00
tblLandUse	LandUseSquareFeet	133,800.00	133,796.00
tblLandUse	LandUseSquareFeet	8,000.00	37,948.00
tblLandUse	LotAcreage	2.31	2.30
tblLandUse	LotAcreage	0.50	2.37
tblLandUse	Population	23.00	68.00
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	2.20	9.25
tblVehicleTrips	ST_TR	10.37	6.27
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	2.44	9.25
tblVehicleTrips	SU_TR	36.63	6.27
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	2.74	8.25
tblVehicleTrips	WD_TR	9.11	6.37
tblWoodstoves	NumberCatalytic	0.40	0.00
tblWoodstoves	NumberNoncatalytic	0.40	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	4.7421	70.7761	38.0512	0.1598	18.2675	1.7285	19.8816	9.9840	1.5936	11.4691	0.0000	16,611.5668	16,611.5668	2.6899	0.0000	16,678.8139
2023	62.4290	23.6571	28.8599	0.0873	4.2733	0.7366	5.0099	1.1509	0.6928	1.8437	0.0000	8,781.5152	8,781.5152	0.8655	0.0000	8,803.1531
Maximum	**62.4290**	**70.7761**	**38.0512**	**0.1598**	**18.2675**	**1.7285**	**19.8816**	**9.9840**	**1.5936**	**11.4691**	**0.0000**	**16,611.5668**	**16,611.5668**	**2.6899**	**0.0000**	**16,678.8139**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	4.7421	70.7761	38.0512	0.1598	8.3310	1.7285	9.9452	4.5222	1.5936	6.0072	0.0000	16,611.5668	16,611.5668	2.6899	0.0000	16,678.8139
2023	62.4290	23.6571	28.8599	0.0873	4.2733	0.7366	5.0099	1.1509	0.6928	1.8437	0.0000	8,781.5152	8,781.5152	0.8655	0.0000	8,803.1531
Maximum	**62.4290**	**70.7761**	**38.0512**	**0.1598**	**8.3310**	**1.7285**	**9.9452**	**4.5222**	**1.5936**	**6.0072**	**0.0000**	**16,611.5668**	**16,611.5668**	**2.6899**	**0.0000**	**16,678.8139**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**44.08**	**0.00**	**39.92**	**49.05**	**0.00**	**41.03**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.2256	0.1208	0.7454	7.6000e-004		0.0129	0.0129		0.0129	0.0129	0.0000	145.2683	145.2683	4.1100e-003	2.6400e-003	146.1579
Energy	0.0569	0.5152	0.4216	3.1000e-003		0.0393	0.0393		0.0393	0.0393		620.3062	620.3062	0.0119	0.0114	623.9923
Mobile	0.9656	4.0626	11.0898	0.0399	3.4385	0.0313	3.4698	0.9202	0.0292	0.9493		4,067.0433	4,067.0433	0.2116		4,072.3340
Total	**4.2480**	**4.6986**	**12.2568**	**0.0438**	**3.4385**	**0.0835**	**3.5220**	**0.9202**	**0.0814**	**1.0015**	**0.0000**	**4,832.6178**	**4,832.6178**	**0.2276**	**0.0140**	**4,842.4842**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.2256	0.1208	0.7454	7.6000e-004		0.0129	0.0129		0.0129	0.0129	0.0000	145.2683	145.2683	4.1100e-003	2.6400e-003	146.1579
Energy	0.0539	0.4884	0.3995	2.9400e-003		0.0373	0.0373		0.0373	0.0373		588.1180	588.1180	0.0113	0.0108	591.6129
Mobile	0.9656	4.0626	11.0898	0.0399	3.4385	0.0313	3.4698	0.9202	0.0292	0.9493		4,067.0433	4,067.0433	0.2116		4,072.3340
Total	**4.2451**	**4.6718**	**12.2347**	**0.0436**	**3.4385**	**0.0815**	**3.5200**	**0.9202**	**0.0793**	**0.9995**	**0.0000**	**4,800.4296**	**4,800.4296**	**0.2270**	**0.0134**	**4,810.1047**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.07	0.57	0.18	0.37	0.00	2.44	0.06	0.00	2.51	0.20	0.00	0.67	0.67	0.27	4.21	0.67

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/1/2022	6/14/2022	5	10	
2	Grading	Grading	6/15/2022	10/18/2022	5	90	
3	Building Construction	Building Construction	10/19/2022	10/31/2023	5	270	
4	Paving	Paving	11/1/2023	11/28/2023	5	20	
5	Architectural Coating	Architectural Coating	11/29/2023	12/26/2023	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 19.18

Acres of Paving: 5.88

Residential Indoor: 76,845; Residential Outdoor: 25,615; Non-Residential Indoor: 150,608; Non-Residential Outdoor: 50,203; Striped Parking Area: 15,366 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	11,382.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	313.00	121.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	63.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836		3,686.0619	3,686.0619	1.1922		3,715.8655
Total	**3.1701**	**33.0835**	**19.6978**	**0.0380**	**18.0663**	**1.6126**	**19.6788**	**9.9307**	**1.4836**	**11.4143**		**3,686.0619**	**3,686.0619**	**1.1922**		**3,715.8655**

3.2 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0806	0.0530	0.6105	1.8700e-003	0.2012	1.5700e-003	0.2028	0.0534	1.4500e-003	0.0548		186.2225	186.2225	5.1300e-003		186.3507
Total	**0.0806**	**0.0530**	**0.6105**	**1.8700e-003**	**0.2012**	**1.5700e-003**	**0.2028**	**0.0534**	**1.4500e-003**	**0.0548**		**186.2225**	**186.2225**	**5.1300e-003**		**186.3507**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836	0.0000	3,686.0619	3,686.0619	1.1922		3,715.8655
Total	**3.1701**	**33.0835**	**19.6978**	**0.0380**	**8.1298**	**1.6126**	**9.7424**	**4.4688**	**1.4836**	**5.9524**	**0.0000**	**3,686.0619**	**3,686.0619**	**1.1922**		**3,715.8655**

3.2 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0806	0.0530	0.6105	1.8700e-003	0.2012	1.5700e-003	0.2028	0.0534	1.4500e-003	0.0548		186.2225	186.2225	5.1300e-003		186.3507
Total	**0.0806**	**0.0530**	**0.6105**	**1.8700e-003**	**0.2012**	**1.5700e-003**	**0.2028**	**0.0534**	**1.4500e-003**	**0.0548**		**186.2225**	**186.2225**	**5.1300e-003**		**186.3507**

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.3625	0.0000	6.3625	3.3520	0.0000	3.3520			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**6.3625**	**1.6349**	**7.9974**	**3.3520**	**1.5041**	**4.8561**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.3 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.0277	31.8737	8.3313	0.0957	2.2114	0.0919	2.3033	0.6062	0.0879	0.6941		10,393.2423	10,393.2423	0.7400		10,411.7417
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0896	0.0589	0.6784	2.0800e-003	0.2236	1.7500e-003	0.2253	0.0593	1.6100e-003	0.0609		206.9139	206.9139	5.7000e-003		207.0563
Total	**1.1173**	**31.9326**	**9.0097**	**0.0978**	**2.4350**	**0.0936**	**2.5286**	**0.6655**	**0.0895**	**0.7550**		**10,600.1562**	**10,600.1562**	**0.7457**		**10,618.7980**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.8631	0.0000	2.8631	1.5084	0.0000	1.5084			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**2.8631**	**1.6349**	**4.4980**	**1.5084**	**1.5041**	**3.0125**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.3 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.0277	31.8737	8.3313	0.0957	2.2114	0.0919	2.3033	0.6062	0.0879	0.6941		10,393.2423	10,393.2423	0.7400		10,411.7417
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0896	0.0589	0.6784	2.0800e-003	0.2236	1.7500e-003	0.2253	0.0593	1.6100e-003	0.0609		206.9139	206.9139	5.7000e-003		207.0563
Total	**1.1173**	**31.9326**	**9.0097**	**0.0978**	**2.4350**	**0.0936**	**2.5286**	**0.6655**	**0.0895**	**0.7550**		**10,600.1562**	**10,600.1562**	**0.7457**		**10,618.7980**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

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

3.4 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3625	11.1416	3.2158	0.0300	0.7747	0.0217	0.7964	0.2230	0.0207	0.2438		3,206.140 4	3,206.140 4	0.2015		3,211.177 8
Worker	1.4017	0.9219	10.6162	0.0325	3.4986	0.0274	3.5260	0.9279	0.0252	0.9531		3,238.202 4	3,238.202 4	0.0892		3,240.431 5
Total	**1.7642**	**12.0635**	**13.8320**	**0.0625**	**4.2733**	**0.0491**	**4.3224**	**1.1509**	**0.0460**	**1.1969**		**6,444.342 8**	**6,444.342 8**	**0.2907**		**6,451.609 3**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.333 6	2,554.333 6	0.6120		2,569.632 2
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.333 6**	**2,554.333 6**	**0.6120**		**2,569.632 2**

3.4 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3625	11.1416	3.2158	0.0300	0.7747	0.0217	0.7964	0.2230	0.0207	0.2438		3,206.1404	3,206.1404	0.2015		3,211.1778
Worker	1.4017	0.9219	10.6162	0.0325	3.4986	0.0274	3.5260	0.9279	0.0252	0.9531		3,238.2024	3,238.2024	0.0892		3,240.4315
Total	**1.7642**	**12.0635**	**13.8320**	**0.0625**	**4.2733**	**0.0491**	**4.3224**	**1.1509**	**0.0460**	**1.1969**		**6,444.3428**	**6,444.3428**	**0.2907**		**6,451.6093**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

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

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2693	8.4384	2.8576	0.0290	0.7747	0.0103	0.7850	0.2231	9.8400e-003	0.2329		3,106.5698	3,106.5698	0.1774		3,111.0045
Worker	1.3206	0.8338	9.7583	0.0313	3.4986	0.0266	3.5252	0.9279	0.0245	0.9524		3,119.7354	3,119.7354	0.0803		3,121.7425
Total	**1.5899**	**9.2722**	**12.6159**	**0.0603**	**4.2733**	**0.0369**	**4.3102**	**1.1509**	**0.0343**	**1.1852**		**6,226.3052**	**6,226.3052**	**0.2577**		**6,232.7470**

Mitigated Construction On-Site

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

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2693	8.4384	2.8576	0.0290	0.7747	0.0103	0.7850	0.2231	9.8400e-003	0.2329		3,106.5698	3,106.5698	0.1774		3,111.0045
Worker	1.3206	0.8338	9.7583	0.0313	3.4986	0.0266	3.5252	0.9279	0.0245	0.9524		3,119.7354	3,119.7354	0.0803		3,121.7425
Total	**1.5899**	**9.2722**	**12.6159**	**0.0603**	**4.2733**	**0.0369**	**4.3102**	**1.1509**	**0.0343**	**1.1852**		**6,226.3052**	**6,226.3052**	**0.2577**		**6,232.7470**

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.4022					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4349**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.5 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0633	0.0400	0.4677	1.5000e-003	0.1677	1.2800e-003	0.1689	0.0445	1.1700e-003	0.0456		149.5081	149.5081	3.8500e-003		149.6043
Total	**0.0633**	**0.0400**	**0.4677**	**1.5000e-003**	**0.1677**	**1.2800e-003**	**0.1689**	**0.0445**	**1.1700e-003**	**0.0456**		**149.5081**	**149.5081**	**3.8500e-003**		**149.6043**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.4022					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4349**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.5 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0633	0.0400	0.4677	1.5000e-003	0.1677	1.2800e-003	0.1689	0.0445	1.1700e-003	0.0456		149.5081	149.5081	3.8500e-003		149.6043
Total	**0.0633**	**0.0400**	**0.4677**	**1.5000e-003**	**0.1677**	**1.2800e-003**	**0.1689**	**0.0445**	**1.1700e-003**	**0.0456**		**149.5081**	**149.5081**	**3.8500e-003**		**149.6043**

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	61.9716					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**62.1632**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.6 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2658	0.1678	1.9641	6.3000e-003	0.7042	5.3600e-003	0.7096	0.1868	4.9300e-003	0.1917		627.9340	627.9340	0.0162		628.3380
Total	**0.2658**	**0.1678**	**1.9641**	**6.3000e-003**	**0.7042**	**5.3600e-003**	**0.7096**	**0.1868**	**4.9300e-003**	**0.1917**		**627.9340**	**627.9340**	**0.0162**		**628.3380**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	61.9716					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**62.1632**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.6 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2658	0.1678	1.9641	6.3000e-003	0.7042	5.3600e-003	0.7096	0.1868	4.9300e-003	0.1917		627.9340	627.9340	0.0162		628.3380
Total	**0.2658**	**0.1678**	**1.9641**	**6.3000e-003**	**0.7042**	**5.3600e-003**	**0.7096**	**0.1868**	**4.9300e-003**	**0.1917**		**627.9340**	**627.9340**	**0.0162**		**628.3380**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Mitigated	0.9656	4.0626	11.0898	0.0399	3.4385	0.0313	3.4698	0.9202	0.0292	0.9493		4,067.0433	4,067.0433	0.2116		4,072.3340
Unmitigated	0.9656	4.0626	11.0898	0.0399	3.4385	0.0313	3.4698	0.9202	0.0292	0.9493		4,067.0433	4,067.0433	0.2116		4,072.3340

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Congregate Care (Assisted Living)	66.00	74.00	74.00	233,343	233,343
Enclosed Parking with Elevator	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Place of Worship	639.61	629.57	629.57	1,358,039	1,358,039
Total	705.61	703.57	703.57	1,591,381	1,591,381

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	16.60	8.40	6.90	33.00	48.00	19.00	66	28	6
Congregate Care (Assisted	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Enclosed Parking with Elevator	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Place of Worship	16.60	8.40	6.90	0.00	95.00	5.00	64	25	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.545842	0.044768	0.205288	0.119317	0.015350	0.006227	0.020460	0.031333	0.002546	0.002133	0.005184	0.000692	0.000862
Congregate Care (Assisted Living)	0.545842	0.044768	0.205288	0.119317	0.015350	0.006227	0.020460	0.031333	0.002546	0.002133	0.005184	0.000692	0.000862
Enclosed Parking with Elevator	0.545842	0.044768	0.205288	0.119317	0.015350	0.006227	0.020460	0.031333	0.002546	0.002133	0.005184	0.000692	0.000862
Other Asphalt Surfaces	0.545842	0.044768	0.205288	0.119317	0.015350	0.006227	0.020460	0.031333	0.002546	0.002133	0.005184	0.000692	0.000862
Place of Worship	0.545842	0.044768	0.205288	0.119317	0.015350	0.006227	0.020460	0.031333	0.002546	0.002133	0.005184	0.000692	0.000862

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0539	0.4884	0.3995	2.9400e-003		0.0373	0.0373		0.0373	0.0373		588.1180	588.1180	0.0113	0.0108	591.6129
NaturalGas Unmitigated	0.0569	0.5152	0.4216	3.1000e-003		0.0393	0.0393		0.0393	0.0393		620.3062	620.3062	0.0119	0.0114	623.9923

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Congregate Care (Assisted Living)	293.615	3.1700e-003	0.0271	0.0115	1.7000e-004		2.1900e-003	2.1900e-003		2.1900e-003	2.1900e-003		34.5429	34.5429	6.6000e-004	6.3000e-004	34.7482
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Place of Worship	4978.99	0.0537	0.4881	0.4100	2.9300e-003		0.0371	0.0371		0.0371	0.0371		585.7633	585.7633	0.0112	0.0107	589.2442
Total		**0.0569**	**0.5152**	**0.4215**	**3.1000e-003**		**0.0393**	**0.0393**		**0.0393**	**0.0393**		**620.3062**	**620.3062**	**0.0119**	**0.0114**	**623.9923**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Congregate Care (Assisted Living)	0.282856	3.0500e-003	0.0261	0.0111	1.7000e-004		2.1100e-003	2.1100e-003		2.1100e-003	2.1100e-003		33.2772	33.2772	6.4000e-004	6.1000e-004	33.4750
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Place of Worship	4.71615	0.0509	0.4624	0.3884	2.7700e-003		0.0351	0.0351		0.0351	0.0351		554.8408	554.8408	0.0106	0.0102	558.1379
Total		**0.0539**	**0.4884**	**0.3995**	**2.9400e-003**		**0.0373**	**0.0373**		**0.0373**	**0.0373**		**588.1180**	**588.1180**	**0.0113**	**0.0108**	**591.6129**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.2256	0.1208	0.7454	7.6000e-004		0.0129	0.0129		0.0129	0.0129	0.0000	145.2683	145.2683	4.1100e-003	2.6400e-003	146.1579
Unmitigated	3.2256	0.1208	0.7454	7.6000e-004		0.0129	0.0129		0.0129	0.0129	0.0000	145.2683	145.2683	4.1100e-003	2.6400e-003	146.1579

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3396					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.8495					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0132	0.1128	0.0480	7.2000e-004		9.1200e-003	9.1200e-003		9.1200e-003	9.1200e-003	0.0000	144.0000	144.0000	2.7600e-003	2.6400e-003	144.8557
Landscaping	0.0233	7.9500e-003	0.6974	4.0000e-005		3.7900e-003	3.7900e-003		3.7900e-003	3.7900e-003		1.2683	1.2683	1.3500e-003		1.3021
Total	**3.2256**	**0.1208**	**0.7454**	**7.6000e-004**		**0.0129**	**0.0129**		**0.0129**	**0.0129**	**0.0000**	**145.2683**	**145.2683**	**4.1100e-003**	**2.6400e-003**	**146.1579**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3396					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.8495					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0132	0.1128	0.0480	7.2000e-004		9.1200e-003	9.1200e-003		9.1200e-003	9.1200e-003	0.0000	144.0000	144.0000	2.7600e-003	2.6400e-003	144.8557
Landscaping	0.0233	7.9500e-003	0.6974	4.0000e-005		3.7900e-003	3.7900e-003		3.7900e-003	3.7900e-003		1.2683	1.2683	1.3500e-003		1.3021
Total	**3.2256**	**0.1208**	**0.7454**	**7.6000e-004**		**0.0129**	**0.0129**		**0.0129**	**0.0129**	**0.0000**	**145.2683**	**145.2683**	**4.1100e-003**	**2.6400e-003**	**146.1579**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

16-03582 Hsi Lai Temple

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Place of Worship	100.41	1000sqft	2.30	100,405.00	0
Enclosed Parking with Elevator	122.30	1000sqft	2.81	122,297.00	0
Other Asphalt Surfaces	133.80	1000sqft	3.07	133,796.00	0
City Park	8.63	Acre	8.63	375,922.80	0
Congregate Care (Assisted Living)	8.00	Dwelling Unit	2.37	37,948.00	68

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Project information from client; 28.96 total site acreage (19.18 acres shown in CalEEMod LU + 9.78 acres of site to be preserved as open space)

Construction Phase - Default construction length for grading of 30 days expanded to 90 days to accommodate the soil export under grading. The building construction length was shortened from 300 days to 270 days to accommodate this lengthened grading period.

Trips and VMT -

Grading - Based on revised site plans and client info (August/September 2019)

Vehicle Trips - Traffic volumes from TIA (LLG 2019); conservative scenario from TIA (special events + regular operation) used.

Woodstoves - Assumed all natural gas fireplaces

Construction Off-road Equipment Mitigation -

Area Mitigation -

Energy Mitigation - 2019 Title 24 will be applied to project

Water Mitigation - CalGREEN standards

Waste Mitigation - AB 341, 25 percent reduction for 2020 over 50 reduction already incorporated

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	30.00	90.00
tblConstructionPhase	NumDays	300.00	270.00
tblConstructionPhase	PhaseEndDate	7/26/2022	10/18/2022
tblConstructionPhase	PhaseEndDate	9/19/2023	10/31/2023
tblConstructionPhase	PhaseEndDate	10/17/2023	11/28/2023
tblConstructionPhase	PhaseEndDate	11/14/2023	12/26/2023
tblConstructionPhase	PhaseStartDate	7/27/2022	10/19/2022
tblConstructionPhase	PhaseStartDate	9/20/2023	11/1/2023
tblConstructionPhase	PhaseStartDate	10/18/2023	11/29/2023

tblFireplaces	NumberWood	0.40	0.00
tblGrading	AcresOfGrading	225.00	19.18
tblGrading	MaterialExported	0.00	91,056.00
tblLandUse	LandUseSquareFeet	100,410.00	100,405.00
tblLandUse	LandUseSquareFeet	122,300.00	122,297.00
tblLandUse	LandUseSquareFeet	133,800.00	133,796.00
tblLandUse	LandUseSquareFeet	8,000.00	37,948.00
tblLandUse	LotAcreage	2.31	2.30
tblLandUse	LotAcreage	0.50	2.37
tblLandUse	Population	23.00	68.00
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	2.20	9.25
tblVehicleTrips	ST_TR	10.37	6.27
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	2.44	9.25
tblVehicleTrips	SU_TR	36.63	6.27
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	2.74	8.25
tblVehicleTrips	WD_TR	9.11	6.37
tblWoodstoves	NumberCatalytic	0.40	0.00
tblWoodstoves	NumberNoncatalytic	0.40	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.3166	4.1181	2.6069	9.8300e-003	0.5964	0.1086	0.7049	0.2602	0.1005	0.3607	0.0000	919.1299	919.1299	0.1363	0.0000	922.5362
2023	0.9668	2.7008	3.3377	9.9100e-003	0.4634	0.0858	0.5492	0.1250	0.0806	0.2056	0.0000	904.1652	904.1652	0.0916	0.0000	906.4555
Maximum	**0.9668**	**4.1181**	**3.3377**	**9.9100e-003**	**0.5964**	**0.1086**	**0.7049**	**0.2602**	**0.1005**	**0.3607**	**0.0000**	**919.1299**	**919.1299**	**0.1363**	**0.0000**	**922.5362**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.3166	4.1181	2.6069	9.8300e-003	0.3892	0.1086	0.4978	0.1499	0.1005	0.2504	0.0000	919.1295	919.1295	0.1363	0.0000	922.5358
2023	0.9668	2.7008	3.3377	9.9100e-003	0.4634	0.0858	0.5492	0.1250	0.0806	0.2056	0.0000	904.1649	904.1649	0.0916	0.0000	906.4552
Maximum	**0.9668**	**4.1181**	**3.3377**	**9.9100e-003**	**0.4634**	**0.1086**	**0.5492**	**0.1499**	**0.1005**	**0.2504**	**0.0000**	**919.1295**	**919.1295**	**0.1363**	**0.0000**	**922.5358**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**19.55**	**0.00**	**16.52**	**28.63**	**0.00**	**19.47**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	6-1-2022	8-31-2022	2.2745	2.2745
2	9-1-2022	11-30-2022	1.7687	1.7687
3	12-1-2022	2-28-2023	0.9100	0.9100
4	3-1-2023	5-31-2023	0.8770	0.8770
5	6-1-2023	8-31-2023	0.8748	0.8748
6	9-1-2023	9-30-2023	0.2853	0.2853
		Highest	2.2745	2.2745

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.5851	2.4000e-003	0.0878	1.0000e-005		5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004	0.0000	1.7768	1.7768	1.8000e-004	3.0000e-005	1.7903
Energy	0.0104	0.0940	0.0769	5.7000e-004		7.1700e-003	7.1700e-003		7.1700e-003	7.1700e-003	0.0000	696.4628	696.4628	0.0265	6.9500e-003	699.1973
Mobile	0.1685	0.7412	2.0104	7.2500e-003	0.6040	5.5900e-003	0.6096	0.1619	5.2000e-003	0.1671	0.0000	671.0202	671.0202	0.0342	0.0000	671.8750
Waste						0.0000	0.0000		0.0000	0.0000	117.8119	0.0000	117.8119	6.9625	0.0000	291.8740
Water						0.0000	0.0000		0.0000	0.0000	1.1621	70.1537	71.3157	0.1223	3.4200e-003	75.3905
Total	**0.7640**	**0.8376**	**2.1751**	**7.8300e-003**	**0.6040**	**0.0134**	**0.6173**	**0.1619**	**0.0130**	**0.1749**	**118.9740**	**1,439.4134**	**1,558.3874**	**7.1456**	**0.0104**	**1,740.1271**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.5851	2.4000e-003	0.0878	1.0000e-005		5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004	0.0000	1.7768	1.7768	1.8000e-004	3.0000e-005	1.7903
Energy	9.8400e-003	0.0891	0.0729	5.4000e-004		6.8000e-003	6.8000e-003		6.8000e-003	6.8000e-003	0.0000	675.3576	675.3576	0.0257	6.7200e-003	678.0040
Mobile	0.1685	0.7412	2.0104	7.2500e-003	0.6040	5.5900e-003	0.6096	0.1619	5.2000e-003	0.1671	0.0000	671.0202	671.0202	0.0342	0.0000	671.8750
Waste						0.0000	0.0000		0.0000	0.0000	88.3589	0.0000	88.3589	5.2219	0.0000	218.9055
Water						0.0000	0.0000		0.0000	0.0000	0.9297	67.1143	68.0440	0.0983	2.8300e-003	71.3431
Total	**0.7634**	**0.8327**	**2.1711**	**7.8000e-003**	**0.6040**	**0.0130**	**0.6170**	**0.1619**	**0.0126**	**0.1745**	**89.2886**	**1,415.2689**	**1,504.5575**	**5.3802**	**9.5800e-003**	**1,641.9179**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.07**	**0.58**	**0.18**	**0.38**	**0.00**	**2.77**	**0.06**	**0.00**	**2.85**	**0.21**	**24.95**	**1.68**	**3.45**	**24.71**	**7.88**	**5.64**

3.0 Construction Detail

Construction Phase

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	11,382.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	313.00	121.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	63.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0159	0.1654	0.0985	1.9000e-004		8.0600e-003	8.0600e-003		7.4200e-003	7.4200e-003	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549
Total	**0.0159**	**0.1654**	**0.0985**	**1.9000e-004**	**0.0903**	**8.0600e-003**	**0.0984**	**0.0497**	**7.4200e-003**	**0.0571**	**0.0000**	**16.7197**	**16.7197**	**5.4100e-003**	**0.0000**	**16.8549**

3.2 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6000e-004	2.7000e-004	3.1400e-003	1.0000e-005	9.9000e-004	1.0000e-005	9.9000e-004	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8587	0.8587	2.0000e-005	0.0000	0.8593
Total	**3.6000e-004**	**2.7000e-004**	**3.1400e-003**	**1.0000e-005**	**9.9000e-004**	**1.0000e-005**	**9.9000e-004**	**2.6000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.8587**	**0.8587**	**2.0000e-005**	**0.0000**	**0.8593**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0407	0.0000	0.0407	0.0223	0.0000	0.0223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0159	0.1654	0.0985	1.9000e-004		8.0600e-003	8.0600e-003		7.4200e-003	7.4200e-003	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549
Total	**0.0159**	**0.1654**	**0.0985**	**1.9000e-004**	**0.0407**	**8.0600e-003**	**0.0487**	**0.0223**	**7.4200e-003**	**0.0298**	**0.0000**	**16.7197**	**16.7197**	**5.4100e-003**	**0.0000**	**16.8549**

3.2 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6000e-004	2.7000e-004	3.1400e-003	1.0000e-005	9.9000e-004	1.0000e-005	9.9000e-004	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8587	0.8587	2.0000e-005	0.0000	0.8593
Total	**3.6000e-004**	**2.7000e-004**	**3.1400e-003**	**1.0000e-005**	**9.9000e-004**	**1.0000e-005**	**9.9000e-004**	**2.6000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.8587**	**0.8587**	**2.0000e-005**	**0.0000**	**0.8593**

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2863	0.0000	0.2863	0.1508	0.0000	0.1508	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1631	1.7480	1.3069	2.7900e-003		0.0736	0.0736		0.0677	0.0677	0.0000	245.4057	245.4057	0.0794	0.0000	247.3899
Total	**0.1631**	**1.7480**	**1.3069**	**2.7900e-003**	**0.2863**	**0.0736**	**0.3599**	**0.1508**	**0.0677**	**0.2185**	**0.0000**	**245.4057**	**245.4057**	**0.0794**	**0.0000**	**247.3899**

3.3 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0456	1.4622	0.3633	4.3500e-003	0.0978	4.1000e-003	0.1019	0.0269	3.9200e-003	0.0308	0.0000	428.6639	428.6639	0.0296	0.0000	429.4050
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6300e-003	2.7200e-003	0.0314	9.0000e-005	9.8600e-003	8.0000e-005	9.9400e-003	2.6200e-003	7.0000e-005	2.6900e-003	0.0000	8.5874	8.5874	2.4000e-004	0.0000	8.5933
Total	**0.0493**	**1.4649**	**0.3946**	**4.4400e-003**	**0.1077**	**4.1800e-003**	**0.1119**	**0.0295**	**3.9900e-003**	**0.0335**	**0.0000**	**437.2513**	**437.2513**	**0.0299**	**0.0000**	**437.9983**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1288	0.0000	0.1288	0.0679	0.0000	0.0679	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1631	1.7480	1.3069	2.7900e-003		0.0736	0.0736		0.0677	0.0677	0.0000	245.4054	245.4054	0.0794	0.0000	247.3896
Total	**0.1631**	**1.7480**	**1.3069**	**2.7900e-003**	**0.1288**	**0.0736**	**0.2024**	**0.0679**	**0.0677**	**0.1356**	**0.0000**	**245.4054**	**245.4054**	**0.0794**	**0.0000**	**247.3896**

3.3 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0456	1.4622	0.3633	4.3500e-003	0.0978	4.1000e-003	0.1019	0.0269	3.9200e-003	0.0308	0.0000	428.6639	428.6639	0.0296	0.0000	429.4050
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6300e-003	2.7200e-003	0.0314	9.0000e-005	9.8600e-003	8.0000e-005	9.9400e-003	2.6200e-003	7.0000e-005	2.6900e-003	0.0000	8.5874	8.5874	2.4000e-004	0.0000	8.5933
Total	**0.0493**	**1.4649**	**0.3946**	**4.4400e-003**	**0.1077**	**4.1800e-003**	**0.1119**	**0.0295**	**3.9900e-003**	**0.0335**	**0.0000**	**437.2513**	**437.2513**	**0.0299**	**0.0000**	**437.9983**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0452	0.4138	0.4336	7.1000e-004		0.0214	0.0214		0.0202	0.0202	0.0000	61.4072	61.4072	0.0147	0.0000	61.7750
Total	**0.0452**	**0.4138**	**0.4336**	**7.1000e-004**		**0.0214**	**0.0214**		**0.0202**	**0.0202**	**0.0000**	**61.4072**	**61.4072**	**0.0147**	**0.0000**	**61.7750**

3.4 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.3500e-003	0.3007	0.0812	8.1000e-004	0.0202	5.6000e-004	0.0208	5.8300e-003	5.4000e-004	6.3700e-003	0.0000	78.3449	78.3449	4.6800e-003	0.0000	78.4619
Worker	0.0335	0.0251	0.2890	8.8000e-004	0.0909	7.3000e-004	0.0916	0.0241	6.7000e-004	0.0248	0.0000	79.1424	79.1424	2.1800e-003	0.0000	79.1969
Total	**0.0428**	**0.3258**	**0.3702**	**1.6900e-003**	**0.1111**	**1.2900e-003**	**0.1124**	**0.0300**	**1.2100e-003**	**0.0312**	**0.0000**	**157.4873**	**157.4873**	**6.8600e-003**	**0.0000**	**157.6588**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0452	0.4138	0.4336	7.1000e-004		0.0214	0.0214		0.0202	0.0202	0.0000	61.4071	61.4071	0.0147	0.0000	61.7749
Total	**0.0452**	**0.4138**	**0.4336**	**7.1000e-004**		**0.0214**	**0.0214**		**0.0202**	**0.0202**	**0.0000**	**61.4071**	**61.4071**	**0.0147**	**0.0000**	**61.7749**

3.4 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.3500e-003	0.3007	0.0812	8.1000e-004	0.0202	5.6000e-004	0.0208	5.8300e-003	5.4000e-004	6.3700e-003	0.0000	78.3449	78.3449	4.6800e-003	0.0000	78.4619
Worker	0.0335	0.0251	0.2890	8.8000e-004	0.0909	7.3000e-004	0.0916	0.0241	6.7000e-004	0.0248	0.0000	79.1424	79.1424	2.1800e-003	0.0000	79.1969
Total	**0.0428**	**0.3258**	**0.3702**	**1.6900e-003**	**0.1111**	**1.2900e-003**	**0.1124**	**0.0300**	**1.2100e-003**	**0.0312**	**0.0000**	**157.4873**	**157.4873**	**6.8600e-003**	**0.0000**	**157.6588**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1706	1.5608	1.7625	2.9200e-003		0.0759	0.0759		0.0714	0.0714	0.0000	251.5082	251.5082	0.0598	0.0000	253.0039
Total	**0.1706**	**1.5608**	**1.7625**	**2.9200e-003**		**0.0759**	**0.0759**		**0.0714**	**0.0714**	**0.0000**	**251.5082**	**251.5082**	**0.0598**	**0.0000**	**253.0039**

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					tons/yr								MT/yr			
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0284	0.9300	0.2982	3.2000e-003	0.0827	1.0900e-003	0.0838	0.0239	1.0400e-003	0.0249	0.0000	310.7285	310.7285	0.0169	0.0000	311.1518
Worker	0.1288	0.0930	1.0881	3.4500e-003	0.3721	2.8900e-003	0.3750	0.0988	2.6600e-003	0.1015	0.0000	312.1783	312.1783	8.0400e-003	0.0000	312.3792
Total	**0.1573**	**1.0230**	**1.3863**	**6.6500e-003**	**0.4548**	**3.9800e-003**	**0.4588**	**0.1227**	**3.7000e-003**	**0.1264**	**0.0000**	**622.9069**	**622.9069**	**0.0250**	**0.0000**	**623.5311**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					tons/yr								MT/yr			
Off-Road	0.1706	1.5608	1.7625	2.9200e-003		0.0759	0.0759		0.0714	0.0714	0.0000	251.5079	251.5079	0.0598	0.0000	253.0036
Total	**0.1706**	**1.5608**	**1.7625**	**2.9200e-003**		**0.0759**	**0.0759**		**0.0714**	**0.0714**	**0.0000**	**251.5079**	**251.5079**	**0.0598**	**0.0000**	**253.0036**

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0284	0.9300	0.2982	3.2000e-003	0.0827	1.0900e-003	0.0838	0.0239	1.0400e-003	0.0249	0.0000	310.7285	310.7285	0.0169	0.0000	311.1518
Worker	0.1288	0.0930	1.0881	3.4500e-003	0.3721	2.8900e-003	0.3750	0.0988	2.6600e-003	0.1015	0.0000	312.1783	312.1783	8.0400e-003	0.0000	312.3792
Total	**0.1573**	**1.0230**	**1.3863**	**6.6500e-003**	**0.4548**	**3.9800e-003**	**0.4588**	**0.1227**	**3.7000e-003**	**0.1264**	**0.0000**	**622.9069**	**622.9069**	**0.0250**	**0.0000**	**623.5311**

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0103	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0269	20.0269	6.4800e-003	0.0000	20.1888
Paving	4.0200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0144**	**0.1019**	**0.1458**	**2.3000e-004**		**5.1000e-003**	**5.1000e-003**		**4.6900e-003**	**4.6900e-003**	**0.0000**	**20.0269**	**20.0269**	**6.4800e-003**	**0.0000**	**20.1888**

3.5 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.7000e-004	4.1000e-004	4.8100e-003	2.0000e-005	1.6400e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3789	1.3789	4.0000e-005	0.0000	1.3798
Total	**5.7000e-004**	**4.1000e-004**	**4.8100e-003**	**2.0000e-005**	**1.6400e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.3789**	**1.3789**	**4.0000e-005**	**0.0000**	**1.3798**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0103	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0268	20.0268	6.4800e-003	0.0000	20.1888
Paving	4.0200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0144**	**0.1019**	**0.1458**	**2.3000e-004**		**5.1000e-003**	**5.1000e-003**		**4.6900e-003**	**4.6900e-003**	**0.0000**	**20.0268**	**20.0268**	**6.4800e-003**	**0.0000**	**20.1888**

3.5 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.7000e-004	4.1000e-004	4.8100e-003	2.0000e-005	1.6400e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3789	1.3789	4.0000e-005	0.0000	1.3798
Total	**5.7000e-004**	**4.1000e-004**	**4.8100e-003**	**2.0000e-005**	**1.6400e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.3789**	**1.3789**	**4.0000e-005**	**0.0000**	**1.3798**

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6197					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9200e-003	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	**0.6216**	**0.0130**	**0.0181**	**3.0000e-005**		**7.1000e-004**	**7.1000e-004**		**7.1000e-004**	**7.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.5000e-004**	**0.0000**	**2.5571**

3.6 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3900e-003	1.7200e-003	0.0202	6.0000e-005	6.9000e-003	5.0000e-005	6.9600e-003	1.8300e-003	5.0000e-005	1.8800e-003	0.0000	5.7912	5.7912	1.5000e-004	0.0000	5.7949
Total	**2.3900e-003**	**1.7200e-003**	**0.0202**	**6.0000e-005**	**6.9000e-003**	**5.0000e-005**	**6.9600e-003**	**1.8300e-003**	**5.0000e-005**	**1.8800e-003**	**0.0000**	**5.7912**	**5.7912**	**1.5000e-004**	**0.0000**	**5.7949**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6197					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9200e-003	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	**0.6216**	**0.0130**	**0.0181**	**3.0000e-005**		**7.1000e-004**	**7.1000e-004**		**7.1000e-004**	**7.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.5000e-004**	**0.0000**	**2.5571**

3.6 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3900e-003	1.7200e-003	0.0202	6.0000e-005	6.9000e-003	5.0000e-005	6.9600e-003	1.8300e-003	5.0000e-005	1.8800e-003	0.0000	5.7912	5.7912	1.5000e-004	0.0000	5.7949
Total	**2.3900e-003**	**1.7200e-003**	**0.0202**	**6.0000e-005**	**6.9000e-003**	**5.0000e-005**	**6.9600e-003**	**1.8300e-003**	**5.0000e-005**	**1.8800e-003**	**0.0000**	**5.7912**	**5.7912**	**1.5000e-004**	**0.0000**	**5.7949**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Mitigated	0.1685	0.7412	2.0104	7.2500e-003	0.6040	5.5900e-003	0.6096	0.1619	5.2000e-003	0.1671	0.0000	671.0202	671.0202	0.0342	0.0000	671.8750
Unmitigated	0.1685	0.7412	2.0104	7.2500e-003	0.6040	5.5900e-003	0.6096	0.1619	5.2000e-003	0.1671	0.0000	671.0202	671.0202	0.0342	0.0000	671.8750

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Congregate Care (Assisted Living)	66.00	74.00	74.00	233,343	233,343
Enclosed Parking with Elevator	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Place of Worship	639.61	629.57	629.57	1,358,039	1,358,039
Total	705.61	703.57	703.57	1,591,381	1,591,381

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	16.60	8.40	6.90	33.00	48.00	19.00	66	28	6
Congregate Care (Assisted	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Enclosed Parking with Elevator	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Place of Worship	16.60	8.40	6.90	0.00	95.00	5.00	64	25	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.545842	0.044768	0.205288	0.119317	0.015350	0.006227	0.020460	0.031333	0.002546	0.002133	0.005184	0.000692	0.000862
Congregate Care (Assisted Living)	0.545842	0.044768	0.205288	0.119317	0.015350	0.006227	0.020460	0.031333	0.002546	0.002133	0.005184	0.000692	0.000862
Enclosed Parking with Elevator	0.545842	0.044768	0.205288	0.119317	0.015350	0.006227	0.020460	0.031333	0.002546	0.002133	0.005184	0.000692	0.000862
Other Asphalt Surfaces	0.545842	0.044768	0.205288	0.119317	0.015350	0.006227	0.020460	0.031333	0.002546	0.002133	0.005184	0.000692	0.000862
Place of Worship	0.545842	0.044768	0.205288	0.119317	0.015350	0.006227	0.020460	0.031333	0.002546	0.002133	0.005184	0.000692	0.000862

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	577.9881	577.9881	0.0239	4.9400e-003	580.0559
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	593.7642	593.7642	0.0245	5.0700e-003	595.8884
NaturalGas Mitigated	9.8400e-003	0.0891	0.0729	5.4000e-004		6.8000e-003	6.8000e-003		6.8000e-003	6.8000e-003	0.0000	97.3695	97.3695	1.8700e-003	1.7900e-003	97.9482
NaturalGas Unmitigated	0.0104	0.0940	0.0769	5.7000e-004		7.1700e-003	7.1700e-003		7.1700e-003	7.1700e-003	0.0000	102.6986	102.6986	1.9700e-003	1.8800e-003	103.3089

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Congregate Care (Assisted Living)	107169	5.8000e-004	4.9400e-003	2.1000e-003	3.0000e-005		4.0000e-004	4.0000e-004		4.0000e-004	4.0000e-004	0.0000	5.7190	5.7190	1.1000e-004	1.0000e-004	5.7530
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Place of Worship	1.81733e+006	9.8000e-003	0.0891	0.0748	5.3000e-004		6.7700e-003	6.7700e-003		6.7700e-003	6.7700e-003	0.0000	96.9797	96.9797	1.8600e-003	1.7800e-003	97.5560
Total		**0.0104**	**0.0940**	**0.0769**	**5.6000e-004**		**7.1700e-003**	**7.1700e-003**		**7.1700e-003**	**7.1700e-003**	**0.0000**	**102.6987**	**102.6987**	**1.9700e-003**	**1.8800e-003**	**103.3089**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Congregate Care (Assisted Living)	103243	5.6000e-004	4.7600e-003	2.0200e-003	3.0000e-005		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004	0.0000	5.5094	5.5094	1.1000e-004	1.0000e-004	5.5422
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Place of Worship	1.72139e+006	9.2800e-003	0.0844	0.0709	5.1000e-004		6.4100e-003	6.4100e-003		6.4100e-003	6.4100e-003	0.0000	91.8601	91.8601	1.7600e-003	1.6800e-003	92.4060
Total		**9.8400e-003**	**0.0891**	**0.0729**	**5.4000e-004**		**6.7900e-003**	**6.7900e-003**		**6.7900e-003**	**6.7900e-003**	**0.0000**	**97.3695**	**97.3695**	**1.8700e-003**	**1.7800e-003**	**97.9482**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Congregate Care (Assisted Living)	32385.4	10.3187	4.3000e-004	9.0000e-005	10.3556
Enclosed Parking with Elevator	716660	228.3434	9.4300e-003	1.9500e-003	229.1603
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Place of Worship	1.1145e +006	355.1021	0.0147	3.0300e-003	356.3725
Total		**593.7642**	**0.0245**	**5.0700e-003**	**595.8884**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Congregate Care (Assisted Living)	32243.9	10.2736	4.2000e-004	9.0000e-005	10.3104
Enclosed Parking with Elevator	683102	217.6510	8.9900e-003	1.8600e-003	218.4296
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Place of Worship	1.09868e+006	350.0635	0.0145	2.9900e-003	351.3159
Total		**577.9881**	**0.0239**	**4.9400e-003**	**580.0559**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.5851	2.4000e-003	0.0878	1.0000e-005		5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004	0.0000	1.7768	1.7768	1.8000e-004	3.0000e-005	1.7903
Unmitigated	0.5851	2.4000e-003	0.0878	1.0000e-005		5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004	0.0000	1.7768	1.7768	1.8000e-004	3.0000e-005	1.7903

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0620					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.5200					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.7000e-004	1.4100e-003	6.0000e-004	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	1.6329	1.6329	3.0000e-005	3.0000e-005	1.6426
Landscaping	2.9200e-003	9.9000e-004	0.0872	0.0000		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004	0.0000	0.1438	0.1438	1.5000e-004	0.0000	0.1477
Total	**0.5851**	**2.4000e-003**	**0.0878**	**1.0000e-005**		**5.8000e-004**	**5.8000e-004**		**5.8000e-004**	**5.8000e-004**	**0.0000**	**1.7768**	**1.7768**	**1.8000e-004**	**3.0000e-005**	**1.7903**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0620					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.5200					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.7000e-004	1.4100e-003	6.0000e-004	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	1.6329	1.6329	3.0000e-005	3.0000e-005	1.6426
Landscaping	2.9200e-003	9.9000e-004	0.0872	0.0000		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004	0.0000	0.1438	0.1438	1.5000e-004	0.0000	0.1477
Total	**0.5851**	**2.4000e-003**	**0.0878**	**1.0000e-005**		**5.8000e-004**	**5.8000e-004**		**5.8000e-004**	**5.8000e-004**	**0.0000**	**1.7768**	**1.7768**	**1.8000e-004**	**3.0000e-005**	**1.7903**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	68.0440	0.0983	2.8300e-003	71.3431
Unmitigated	71.3157	0.1223	3.4200e-003	75.3905

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 10.2825	36.3988	1.5000e-003	3.1000e-004	36.5290
Congregate Care (Assisted Living)	0.521232 / 0.328603	3.4911	0.0171	4.3000e-004	4.0471
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Place of Worship	3.14172 / 4.91397	31.4259	0.1036	2.6800e-003	34.8144
Total		**71.3157**	**0.1223**	**3.4200e-003**	**75.3905**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 10.2825	36.3988	1.5000e-003	3.1000e-004	36.5290
Congregate Care (Assisted Living)	0.416986 / 0.328603	3.0255	0.0137	3.5000e-004	3.4711
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Place of Worship	2.51338 / 4.91397	28.6197	0.0831	2.1700e-003	31.3430
Total		**68.0440**	**0.0983**	**2.8300e-003**	**71.3431**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	88.3589	5.2219	0.0000	218.9055
Unmitigated	117.8119	6.9625	0.0000	291.8740

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.74	0.1502	8.8800e-003	0.0000	0.3722
Congregate Care (Assisted Living)	7.3	1.4818	0.0876	0.0000	3.6712
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Place of Worship	572.34	116.1799	6.8660	0.0000	287.8307
Total		**117.8119**	**6.9625**	**0.0000**	**291.8740**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.555	0.1127	6.6600e-003	0.0000	0.2791
Congregate Care (Assisted Living)	5.475	1.1114	0.0657	0.0000	2.7534
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Place of Worship	429.255	87.1349	5.1495	0.0000	215.8730
Total		**88.3589**	**5.2219**	**0.0000**	**218.9055**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

N_2O Operational GHG Emission Mobile Calculations

Project Code & Title: 16-03582, Hsi Lai Monastery

Vehicle Population Breakdown*	
7286803	Gasoline vehicles
308081	Diesel vehicles
95.9%	Gasoline vehicle %
4.1%	Diesel vehicle %

VMT per Vehicle Type	
1591381	Project VMT (CalEEMod output)
1526828	Gasoline vehicle VMT
64553	Diesel vehicle VMT

Gasoline Vehicles	
95.9%	Gasoline vehicle %
0.7412	Tons per year mobile NOX emissions (annual output in CalEEMod)
0.71	Gasoline vehicle tons per year NOX emissions
0.0483	Tons per year N2O emissions for gasoline vehicles**
0.0438	Metric tons per year N2O emissions for gasoline vehicles

Diesel Vehicles	
1.60	grams N2O per gallon of fuel for diesel vehicles**
191026.39	Diesel average miles per gallon*
0.00001	grams per mile N2O for diesel vehicles
0.5	grams per year N2O for diesel vehicles
0.0000005	Metric tons per year N2O emissions for diesel vehicles

CO2e Emissions from N2O	
0.0438	Metric tons per year from gasoline + diesel vehicles
298	GWP of N2O***
13.0	**CO2e emissions per year from N2O emissions from gasoline + diesel vehicles**

Sources
***Vehicle population source:**
EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: County
Region: LOS ANGELES
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC2011 Categories
****Methodology source:**
EMFAC2017 Volume III - Technical Documentation
https://www.arb.ca.gov/msei/emfac2011-faq.htm
*****GWP source:**
Intergovernmental Panel on Climate Change (IPCC). 2007.
AR4 Climate Change 2007: The Physical Science Basis.
Contrbution of Working Group I to the Fourth Assessment Report of the
Intergovernmental Panel on Climate Change.

Appendix B-1

Biological Constraints Analysis

Hsi Lai Monastery Site

Biological Constraints Analysis

Los Angeles County Project No: 2018-000207
APNs: 8240-036-021, 8291-035-020, 8291-035-021

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December 2019

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Hsi Lai Monastery Site

Biological Constraints Analysis

Los Angeles County Project No: 2018-000207
APNs: 8240-036-021, 8291-035-020, 8291-035-021

prepared for

International Buddhist Progress Society
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Contact: Gena Ooi, Project Coordinator
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1 Introduction

This report has been prepared according to the County of Los Angeles Department of Regional Planning Biological Constraints Analysis (BCA) Checklist. The report includes all content required by the BCA Checklist, but the report's structural organization varies from the standard BCA structure, and modifications have been made because the proposed activities are actually located outside of existing Significant Ecological Areas (SEA). This report presents information on the existing conditions and biological resources of the Hsi Lai Monastery Site (hereafter referred to as project site or site) including plant and wildlife species, vegetation communities, jurisdictional waters and wetlands, wildlife movement, and locally protected resources, in the regional context in which the site is located. The project site encompasses 28.96 acres (Assessor's Parcel Numbers [APNs] 8240-036-021, 8291-035-020, 8291-035-021), located at 15866 Draper Road, Hacienda Heights, Los Angeles County, California.

The site is on the west side of Hacienda Boulevard and south of the intersection with Glenmark Drive. It is approximately 1.5 miles south of State Route 60 (SR 60), and about 5.5 miles east of Interstate 605 (I-605), as shown in Figure 1. Figure 2 illustrates the project site location on the U.S. Geological Survey (USGS) 7.5-minute La Habra, California quadrangle map in Section 30, Township (T) 2 South (S), Range (R) 10 West (W), San Bernardino base and meridian. Residential neighborhoods border the site on the north; the Puente Hills SEA is approximately 300 feet south of the site, across an electrical transmission corridor (Figure 2 and Figure 3). A parcel of the Arroyo San Miguel Open Space (managed by the Puente Hills Habitat Preservation Authority) is southeast and adjacent to the site; the remainder of the Arroyo San Miguel Open Space comprises a portion of the Puente Hills SEA.

At the time of this report (December 2019), the project site was located within an area designated as part of the Puente Hills Conceptual SEA (County of Los Angeles 2015a). This SEA was not in effect at that time since the County of Los Angeles had not adopted a community based plan for Hacienda Heights that included the Conceptual SEA.[1] On December 12, 2019, the project applicant's zoning application was formally deemed complete by the County Department of Regional Planning staff, in advance of the January 16, 2020, effective date of an updated SEA ordinance that incorporates Conceptual SEAs as full SEAs (County of Los Angeles 2019 and 2020). As a result, the project is exempt from consideration under the updated SEA ordinance, discussion of resources on the project site according to SEA resource categories is neither required nor included, and the conclusions of this analysis are not changed.

APNs 8240-036-021 and 8291-035-020 are undeveloped with no existing structures. APNs 8291-035-020 and 8291-035-021 are located adjacent to and north of APN 8240-036-021. APN 8291-035-021 contains a single family residential building with access currently existing off of Lotus Drive, to the north. Draper Road contains paved and unpaved areas and trends east to west through the middle of the project site (APN 8240-036-021); it serves as a recreational trail for hikers and equestrians.

[1] Per the County of Los Angeles General Plan, "Conceptual SEAs are depicted to show proposed SEA Map updates based on the criteria for SEA designation established by the General Plan. Conceptual SEAs are to be considered and effective only through the preparation and adoption of community based plans" (County of Los Angeles 2015a, pg. 134).

Other minor dirt access roads and pads are present in the immediate vicinity, associated with an electrical transmission corridor south of the site.

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This BCA was prepared by Brenna Vredeveld, Senior Biologist, and Michael Cady, Senior Biologist, of Rincon Consultants, Inc. (Rincon), in coordination with Christopher Julian, Rincon Principal, Senior Regulatory Specialist and SEA Technical Advisory Committee (SEATAC)-approved biologist. Ms. Vredeveld has over 10 years of biological resources consulting experience, including California Environmental Quality Act (CEQA) and other regulatory compliance, and technical report preparation. She holds a Master's degree in environmental science. Mr. Cady has over 14 years of biological resources consulting experience, including conducting focused field studies, regulatory compliance, and technical report preparation. Mr. Julian has over 15 years of biological consulting experience, and has conducted and directed biological impacts analyses for a variety of public and private projects throughout southern California. Appendix A provides additional information regarding the experience of contributors to this BCA.

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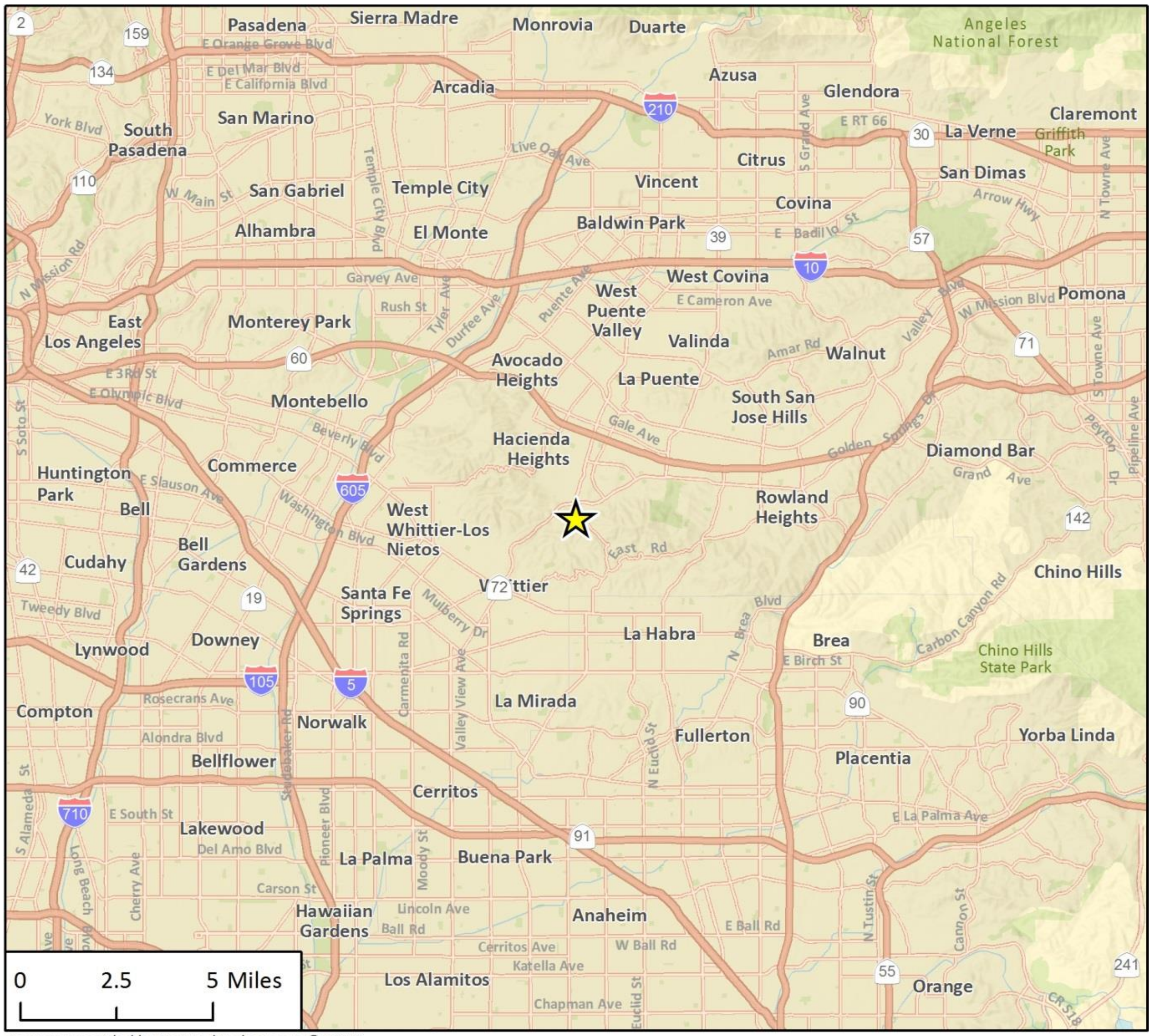
Figure 1 Regional Location Map



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Project Location

N

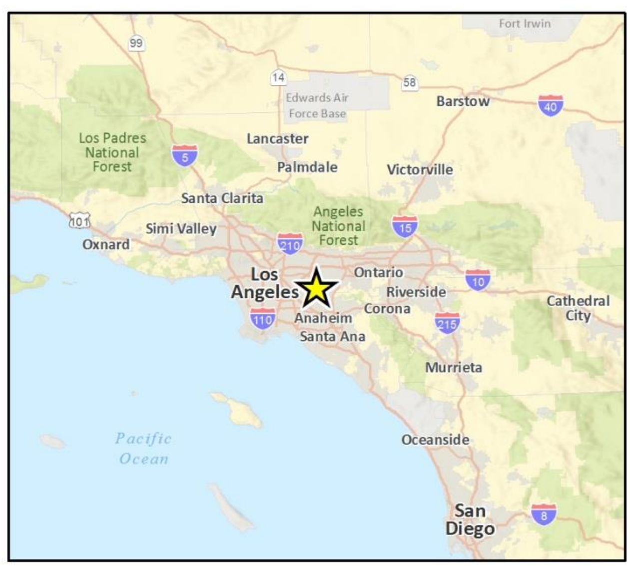
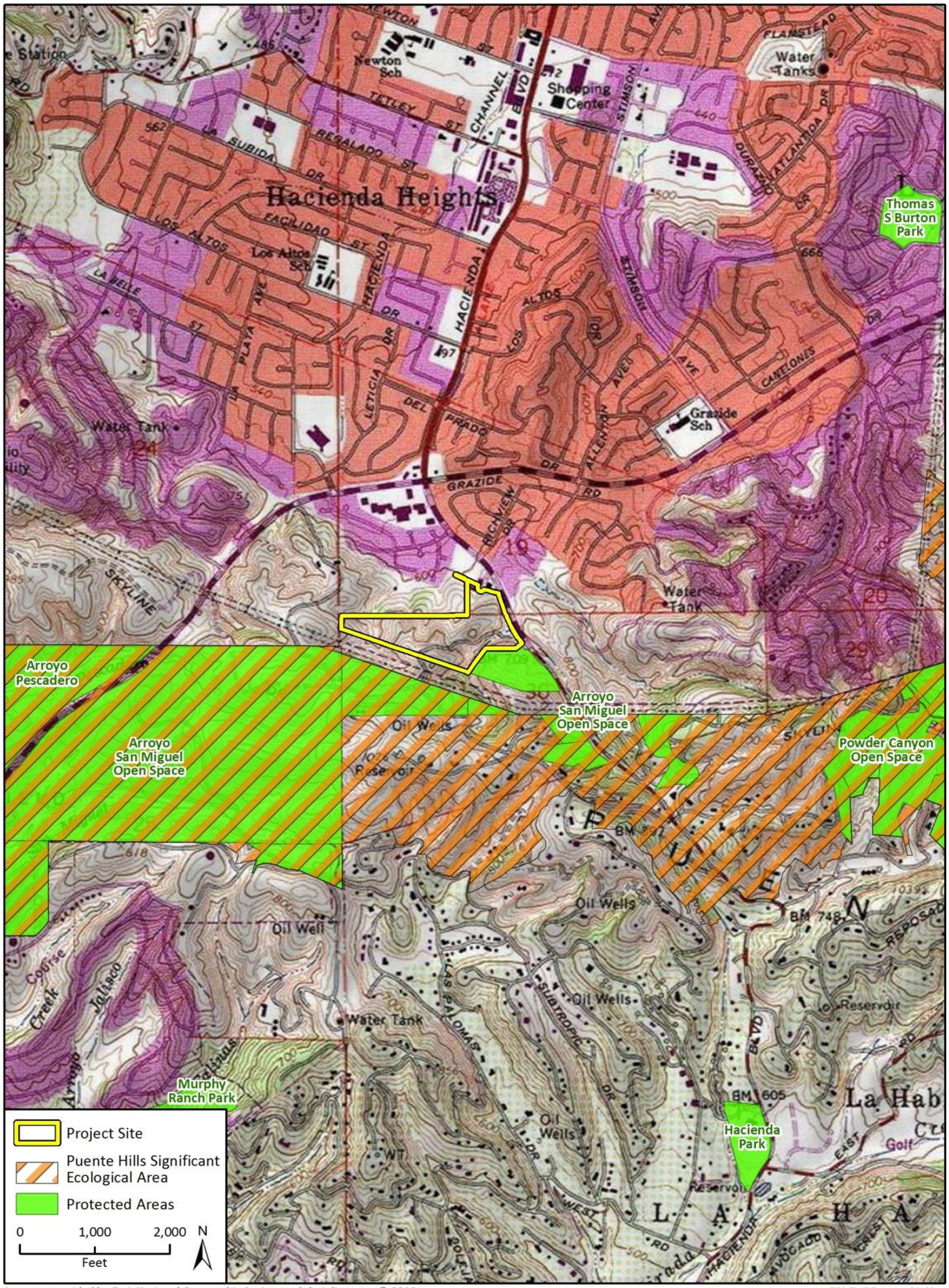


Figure 2   Topographic Map of Project Site Vicinity



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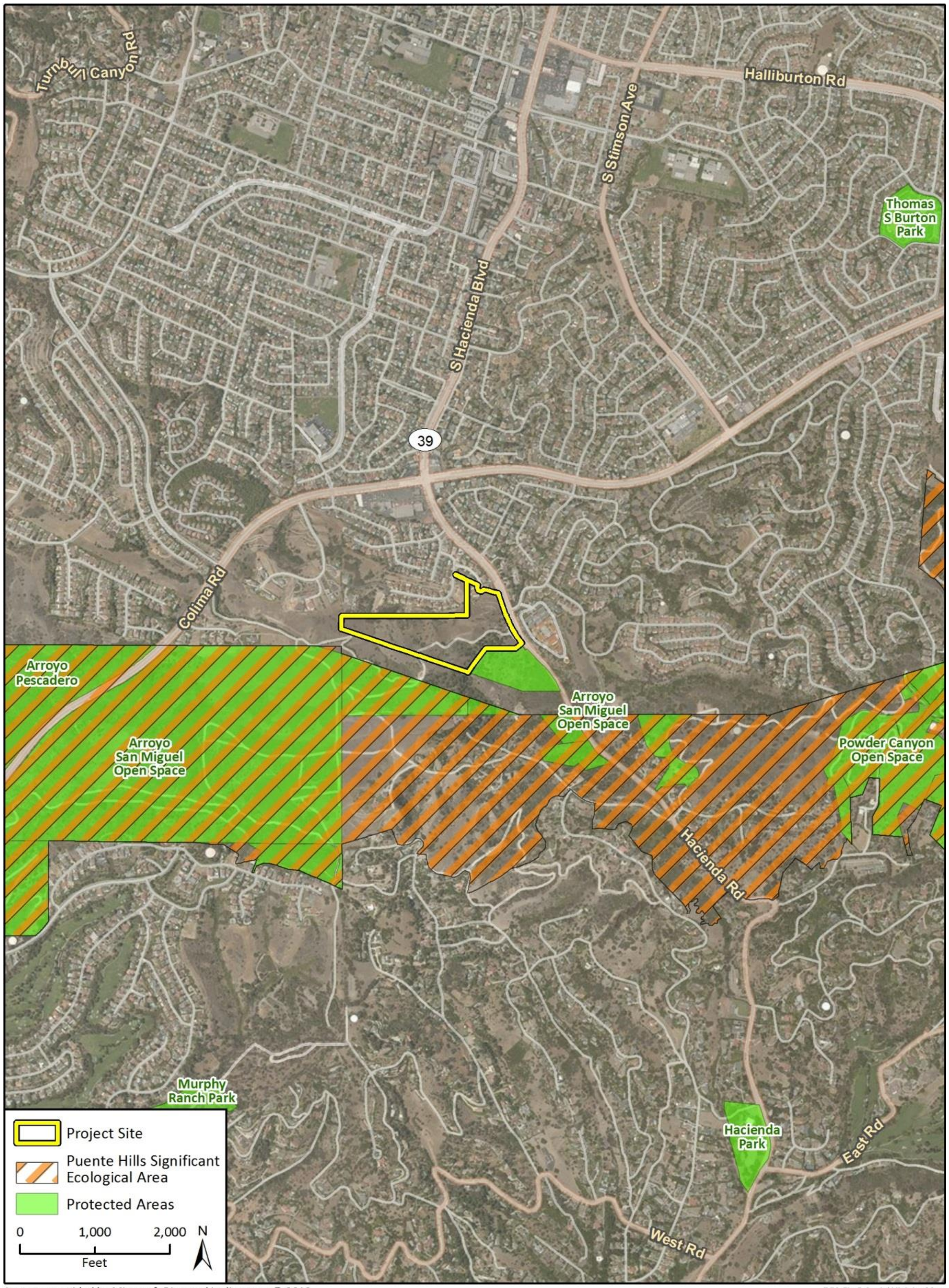
Additional data provided by CPAD, 2019; Los Angeles County, 2018.

Figure 3   Aerial Map of Project Site Vicinity



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Additional data provided by CPAD, 2019; Los Angeles County, 2018.

BCA Fig 3 Aerial Vicinity Map

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2 Methodology

2.1 Literature Review

Rincon staff reviewed literature for baseline information on biological resources potentially occurring at the project site and in the surrounding area. The literature review included information available in peer reviewed journals and standard reference materials (e.g., Bowers *et al.* 2004; Burt and Grossenheider 1980; Holland 1986; Baldwin *et al.* 2012; Sawyer *et al.* 2009; Stebbins 2003; American Ornithologists Union 2018; United States Army Corps of Engineers [USACE] 2008). It also included a review of aerial photographs, climatic data, and regional and local biological resources information available online.

Rincon conducted a review of relevant databases and literature, including but not limited to the following:

- Sensitive resource occurrences from the California Department of Fish and Wildlife (CDFW) California Natural Diversity Data Base (CNDDB) (CDFW 2018a)
- CDFW California Sensitive Natural Communities list (CDFW 2018c)
- U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation portal (USFWS 2018a)
- National Wetlands Inventory (NWI) Wetlands Mapper (USFWS 2018b)
- United States Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS) Web Soil Survey (USDA NRCS 2019)
- California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California (CNPS 2018a)
- Calflora online database, information on California plants for education, research, and conservation (Calflora 2019)
- California Invasive Plant Council (Cal-IPC) Inventory (Cal-IPC 2018)
- eBird, an online database of bird distribution and abundance (eBird 2019)
- Herpetological Education and Research Project (HERP) Database (HERP 2019)
- Los Angeles County General Plan, Chapter 9: Conservation and Natural Resources Element (County of Los Angeles 2015a)
- Los Angeles County General Plan Appendix E: Conservation and Natural Resources Element Resources (County of Los Angeles 2015b)
- Los Angeles County Sensitive Bird Species (Los Angeles County Sensitive Bird Species Working Group 2009)
- Biological Resources Assessment of the Proposed Puente Hills Significant Ecological Area (PCR Services Corporation 2000)
- Puente Hills Habitat Preservation Authority Resource Management Plan (LSA Associates 2007)
- Various biological resources studies conducted in the Puente Hills (cited herein)

2.2 Regulatory Overview

Regulated or sensitive resources studied and discussed in this report include special-status plant and animal species, nesting birds and raptors, sensitive plant communities, jurisdictional waters and wetlands, wildlife movement, and locally protected resources, such as protected trees. Federal, state, and local authorities share regulatory authority over biological resources in the vicinity of the project site. Primary authority for regulation of general biological resources lies within the land use control and planning authority of local jurisdictions (i.e., the County of Los Angeles).

2.2.1 Environmental Statutes

For the purpose of this report, sensitive biological resources are identified in accordance with the following statutes (Appendix B).

- CEQA
- Federal Endangered Species Act (ESA)
- California Endangered Species Act (CESA)
- Federal Clean Water Act
- California Fish and Game Code
- Migratory Bird Treaty Act
- The Bald and Golden Eagle Protection Act
- Porter-Cologne Water Quality Control Act
- County of Los Angeles General Plan (2015a)
- County of Los Angeles Oak Tree Ordinance (Section 22.56.2050 *et seq.*)
- County of Los Angeles Oak Woodlands Conservation Management Plan (2011) and accompanying guide (2014)

2.2.2 Definition of Special-Status Species

Special-status species are those plants and animals listed, proposed for listing, or candidates for listing as Threatened or Endangered by the USFWS under the federal ESA; those listed or candidates for listing as Rare, Threatened, or Endangered by CDFW under CESA and Native Plant Protection Act; animals designated as Fully Protected by the California Fish and Game Code; animals listed as Species of Special Concern (SSC) by the CDFW; CDFW Special Plants, specifically those with California Rare Plant Ranks (CRPR) of 1B, 2, 3, and 4 in the Inventory of Rare and Endangered Vascular Plants of California (CNPS 2018a); and birds identified as sensitive by the Los Angeles County Audubon Society (Los Angeles County Sensitive Bird Species Working Group 2009). Common avian species that receive protection when nesting but otherwise maintain no sensitivity designation are not considered special-status species in this analysis.

2.3 Biological Surveys

2.3.1 General Wildlife, Vegetation Mapping, and Rare Plants

Rincon biologists conducted multiple surveys of the site from February 2018 through June 2018 for APN 8240-036-021 and in July 2019 for APNs 8291-035-020 and 8291-035-021 for general wildlife and vegetation mapping (refer to Table 1). The purpose of these surveys was to document existing biological conditions at the project site, including general observations of habitats and wildlife activity within 100 feet of the site. Wildlife species were identified by direct observation, vocalization, or by sign (e.g., tracks, scat, burrows). The detection of wildlife species was limited by seasonal and temporal factors. The surveys were conducted from the early spring through the middle of summer, and some potentially occurring winter migrants may not have been observed. As surveys were performed during the day, identification of nocturnal animals was limited to sign if present on site. An inventory of plant and animal species observed during the site visits was compiled. Estimated abundance of flora and fauna was assessed using the terms common (c), fairly common (f), uncommon (u), occasional (o), and scarce (s) (refer to Appendix G for definitions).

Vegetation communities observed on the project site were mapped on a site-specific aerial image and later digitized into Global Information Systems (GIS) for record. Vegetation mapping and classification followed *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (CDFW 2018b) and was based on the classification systems provided in *A Manual of California Vegetation, Second Edition* (Sawyer *et al*. 2009). The simultaneous survey for rare plants followed CDFW protocols (CDFW 2018b), as updated in *A Manual of California Vegetation Online* (CNPS 2018b), and employed the Jepson Manual (Baldwin et al. 2012) for identifications.

The biologists conducted the surveys on foot, with some areas of interest more intensely surveyed than others. Where portions of the project site were inaccessible (e.g., steep terrain, thick vegetation), the biologists visually inspected those areas with binoculars (10x40). Weather conditions during the surveys are described in Table 1 below. Site photographs are included in Appendix C.

2.3.2 California Gnatcatcher Surveys

Six California gnatcatcher (*Polioptila californica californica* [CAGN]) surveys were conducted by permitted biologist Scott Duff, in accordance with USFWS protocol (USFWS 1997) between May 18, 2018 and June 22, 2018 (Environmental Intelligence 2018; Appendix D). The initial CAGN survey covered the approximate 25-acre APN 8240-036-021 and an approximate 500-foot buffer (the latter examined using binoculars) to identify areas with potentially suitable habitat; subsequent surveys focused on those areas of interest. All suitable coastal sage scrub habitat on the site was covered on foot while periodically playing taped gnatcatcher vocalization recordings to elicit a response. The majority of APNs 8291-035-020 and 8291-035-21 are located within the CAGN 500-foot survey buffer. As a result, the small area of coastal sage scrub mapped in July 2019 along the southern perimeter of APN 8291-035-020 (where it joins a larger patch of this vegetation community within APN 8240-036-021), and any other scattered remnants of this habitat (smaller than the minimum mapping unit) on both APNs 8291-035-020 and 8291-035-21, were included in the CAGN survey area.

Table 1 Summary of 2018 and 2019 Biological Surveys

Date	Survey	Duration	Biologist(s)*	Weather Conditions
02/01/18	Field Reconnaissance, General Wildlife and Plants	0715-1100	Brenna Vredeveld	**Start:** 0% cover, calm, 52 °F **End:** 0% cover, calm, 77 °F
05/18/18	California gnatcatcher	0610-1050	Scott Duff	**Start:** 100% marine layer, calm, SW winds, 51-60 °F **End:** 100% marine layer, calm, SW wind, 61-70 °F
05/25/18	California gnatcatcher	0610-0940	Scott Duff	**Start:** 26-50% cover, calm, 51-60 °F **End:** 76-99% cover, light breeze, N wind, 61-70 °F
05/25/18	Jurisdictional Delineation, Vegetation Mapping, Rare Plants, General Wildlife	0945-1545	Michael Cady, Brenna Vredeveld, Lily Sam	**Start:** 95% cover, S wind, 67 °F **End:** Clear, 76°F
06/01/18	California gnatcatcher	0620-1000	Scott Duff	**Start:** 0% cover, calm, 51-60 °F **End:** 100% cover, calm, W wind, 71-80 °F
06/08/18	California gnatcatcher	0630-1000	Scott Duff	**Start:** 0% cover, calm, S wind, 51-60 °F **End:** 0% cover, calm, NW wind, 71-80 °F
06/15/18	California gnatcatcher	0700-1030	Scott Duff	**Start:** 26-50% cover, calm, W wind, 61-70 °F **End:** 26-50% cover, calm, N wind, 71-80 °F
06/18/18	Oak Tree/Woodland	0800-1630	Stephanie Lopez, Yuling Huo	**Start:** 65°F **End:** 82°F
06/19/18	Oak Tree/Woodland	0745-1600	Kyle Weichert, Yuling Huo	**Start:** 63°F **End:** 88°F
06/20/18	Oak Tree/Woodland	0545-0715	Kyle Weichert, Yuling Huo	**Start:** 58°F **End:** 63°F
06/20/18	Jurisdictional Delineation, Rare Plants, General Wildlife	0830-1400	Michael Cady	**Start:** 65°F **End:** 84°F
06/22/18	California gnatcatcher	0730-1100	Scott Duff	**Start:** 61-70 °F **End:** 71-80 °F
7/2/19	Vegetation Mapping, Jurisdictional Delineation	0800-1000	Megan Minter, Clarissa Rodriguez	**Start:** 75°F, clear, 1-3mph W wind **End:** 85°F, clear, 1-3mph W wind

*Refer to Appendix A for contributor experience

2.3.3 Jurisdictional Delineation

General hydrology of the project site was evaluated through review of topographic maps, aerial photos, the NWI (USFWS 2018b), and the National Hydrography Dataset (USGS 2018). Rincon biologists conducted jurisdictional delineation surveys on May 25, 2018 and June 20, 2018 for APN 8240-036-021 at the same time as the general biological surveys (Rincon Consultants 2019b; Appendix E). An additional vegetation mapping and jurisdictional delineation survey was conducted on July 2, 2019 for APNs 8291-035-020 and 8291-035-021. The project site was surveyed on foot to identify potentially jurisdictional aquatic resources, including any potential wetlands and non-wetland waters that exhibit an ordinary high water mark (OHWM) and that may constitute waters of the U.S., waters of the state, and/or riparian resources. Wetland sample points were conducted at two locations for two features identified in the NWI data (USFWS 2018b). Data collected for each sample point included the local hydrology, composition, and abundance of the vegetation present; pits were dug to determine if evidence of hydric soils was present. Data points representing top of bank, OHWM, centerline of stream, and other observation points were mapped using a Trimble Geo7X Global Positioning System with sub-meter accuracy and were plotted by hand on aerial photographs. Current federal and state methods and guidelines were used to identify and delineate potential jurisdictional areas. Refer to Appendix E for additional details.

2.3.4 Oak Trees and Oak Woodland

Rincon's International Society of Arboriculture (ISA) Certified Arborists conducted oak tree and woodland surveys in late June 2018 (Rincon Consultants 2019a; Appendix F) according to the requirements of the Los Angeles County Oak Tree Ordinance (Los Angeles County Code of Ordinances Section 22.56.2050 *et seq.*; County of Los Angeles 1988) and the Los Angeles County Oak Woodlands Conservation Management Plan (County of Los Angeles 2011). Trees and woodland were surveyed on site and in a 200-foot buffer. Information gathered included tree trunk and canopy size, tree health assessment, and geographic location of all oak trees, among other variables.

3 Characteristics of the Site

3.1 Topography, Soils, and Climate

The topography of the site consists of three main hills, with a drainage approximating the southeast project boundary. Elevation ranges from a low of approximately 650 feet above mean sea level (MSL) along the eastern boundary of the site at Hacienda Boulevard, to approximately 865 feet above MSL at the highest point in the south-central portion of the site.

The USDA NRCS (2018, 2019) indicates that three non-hydric native soil types occur on the project site (Figure 4):

- **Zaca-Apollo, warm complex, 20 to 55 percent slopes** (1141) occupies approximately 22.2 acres (89 percent) of the site and is a well-drained soil complex composed of clay, sand, and gypsum found on hillslopes.
- **Soper-Pachic Haploxerolls-Boades complex, 25 to 75 percent slopes** (1143) occupies approximately 2.6 acres (10.5 percent) of the site and is a well-drained soil complex composed of clay, sand, and gypsum found on hillslopes.
- **Counterfeit-Urban land complex, 10 to 35 percent slopes, terraced** (1232) occupies approximately 0.1 acre (0.5 percent) of the site and is a poorly drained complex consisting of colluvium and/or residuum weathered soils from sedimentary rock transported and placed.

The project site is situated in the east-west oriented Puente Hills located in the southeastern corner of Los Angeles County. The Puente Hills stretch from the San Gabriel River in the west to the Chino Hills in the east to approximately the Los Angeles County border with San Bernardino County (County of Los Angeles 2015b, PCR Services Corporation 2000; Figure 3). An inland topographical feature, the Puente Hills extend from 400 to 1,416 feet above sea level and consists of ridgelines and gentle to very steep slopes (LSA Associates 2007). The Puente Hills separate the San Gabriel Valley to the northwest and San Bernardino Valley to the northeast from the Los Angeles Basin coastal plain to the south (PCR Services Corporation 2000; LSA Associates 2007). Surface geology of the Puente Hills is comprised of the Miocene, marine, Puente Formation (alternatively referred to as the Monterey and Sycamore Canyon Formations by Dibblee and Ehrenspeck [1991]), which is predominantly composed of siltstone and sandstone members. The project site is underlain by the Sycamore Canyon and Yorba Shale members (shale and sandstone lithologies) of the Puente Formation along with Quaternary older alluvium (Clifford and DeBusk 2019).

Local climate is characterized by long, hot, dry summers and short, mild winters. Average high temperatures range from 70 to 89 degrees Fahrenheit (°F) and average low temperatures are 47 to 65 °F. The average annual precipitation in the region is 10.91 inches, with most of the rainfall occurring December to March (National Oceanic and Atmospheric Administration 2018).

3.1.1 Watershed and Drainages

The San Jose Creek watershed, in which the project site is located, drains approximately 83 square miles. Located entirely in Los Angeles County, this watershed encompasses a narrow area extending from the San Gabriel Mountains southwest of Mount Baldy into the Los Angeles Basin through La Verne, where its area broadens to encompass western Pomona, Walnut, Diamond Bar, West Covina, Valinda, La Puente, Rowland Heights, and Hacienda Heights, among others. San Jose Creek joins the San Gabriel River north of the I-605 and SR 60 interchange. Much of the watershed area has been developed with urban and suburban uses with portions of the San Bernardino Mountains, San Jose Hills, and Puente Hills remaining as undeveloped areas in a broader landscape of developed land. The southern boundary of the watershed is located along the ridge of the Puente Hills, approximately 1,000 feet south of the project site.

The project site is in the Lower San Jose Creek watershed (Hydrologic Unit Code 180701060502), a component of the San Gabriel River watershed (Figure 5). A drainage on the north-central portion of the site runs along the sides of the canyons; an unnamed intermittent USGS blue line stream traverses the south eastern portion of the project site and flows into culverts adjacent to Hacienda Boulevard. Three other drainages also occur on the project site, two along the west edge and one in the northeast-central area, that are either entirely contained on the project site or that have endpoints immediately adjacent to the project area. Based on an examination of aerial imagery and observations during the site visits on May 25 and June 20, 2018, the systems appear to experience periodic flash flooding, which is typical for the region and for semi-arid region streams in sandy substrates. Steep hills surrounding the site generate runoff during storm events that collects and flows through the drainage features on the site. Drainage is generally from south to north in the project site (Rincon Consultants 2019b).

The end points of on-site drainages lead to underground storm water runoff infrastructure that flows into the Lower San Jose Creek and then into the San Gabriel River.

3.2 Vegetation and Other Land Cover

Ten vegetation communities and one land cover type were identified on site (Table 2, Figure 6), with non-native assemblages of upland mustard and annual brome grassland covering over half the site. The communities were classified using the Sawyer et al. (2009) system, as updated in *A Manual of California Vegetation Online* (CNPS 2018b).

The CDFW *California Sensitive Natural Communities* list (2018c) identifies sensitive natural communities throughout California, based in part on global and state rarity ranks. Natural communities having a rank of 1-3 are generally considered sensitive, though some communities with other ranks may also be considered sensitive. Three vegetation communities on the project site are considered sensitive by the CDFW (2018c): Blue Elderberry Stands, Purple Needle Grass Grassland, and Palmer’s Goldenbush Scrub.

Figure 4 Soils Map

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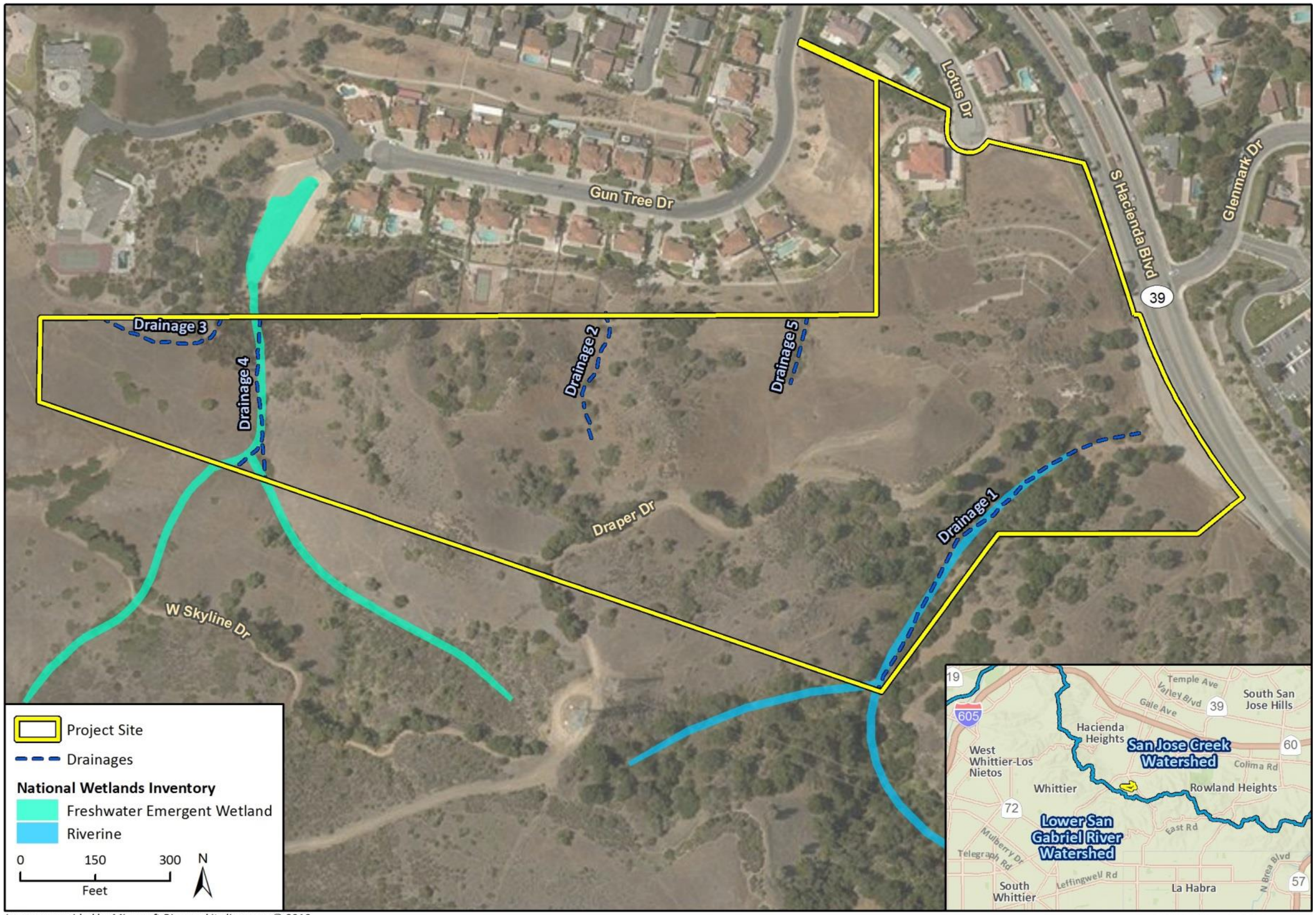
Additional data provided by USDA NRCS SSURGO, 2018.

BCA Fig 4 Soils Map

Figure 5 Watershed and Drainages Map



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Additional data provided by USGS, 2018; USFWS, 2018.

BCA Fig 5 Watershed Drainages Map

Figure 6 Vegetation Community and Special-Status Plants Map

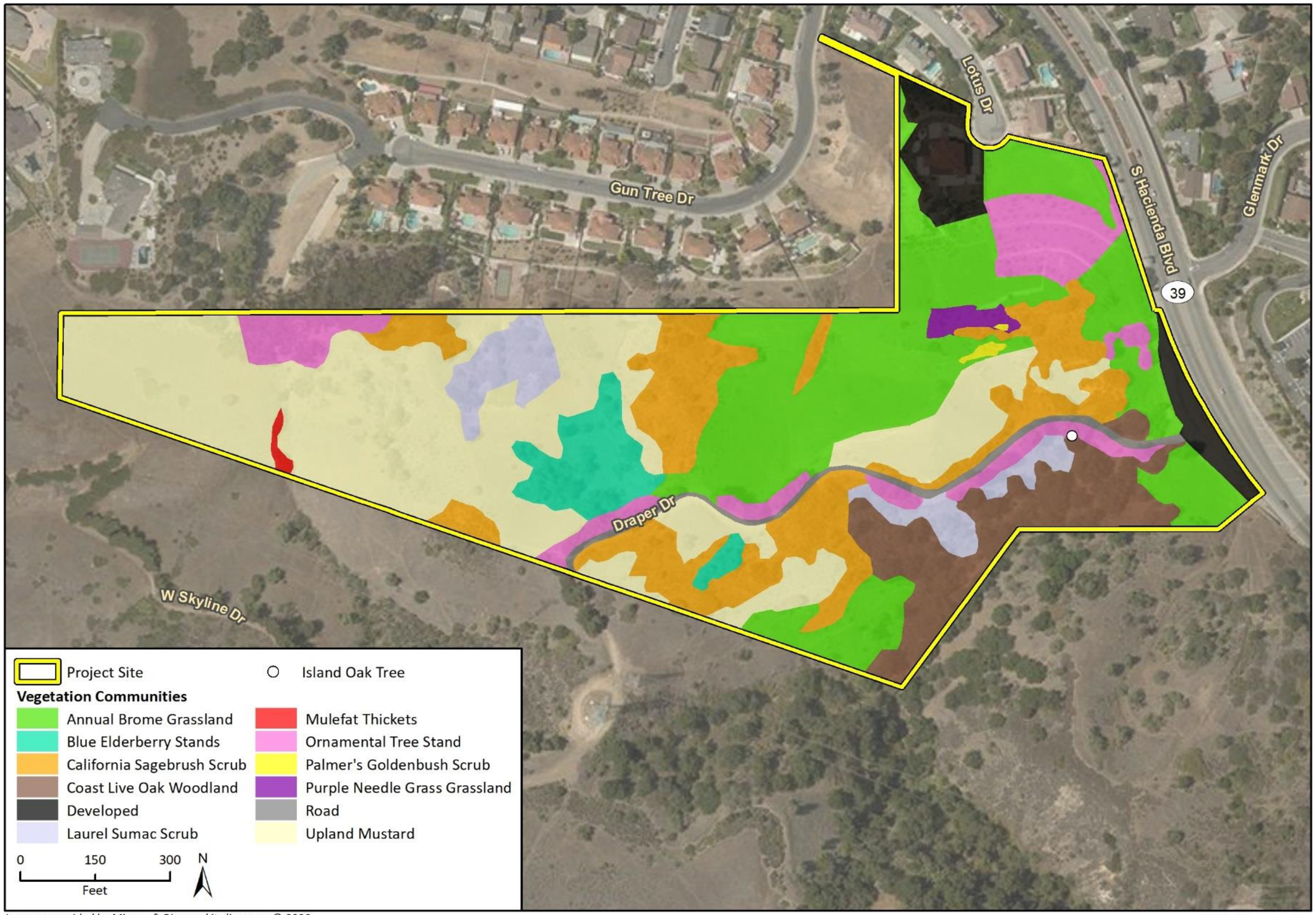

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Table 2 Summary of Vegetation Communities

Vegetation Community	Sensitivity Rank[1]	Acres
Upland Mustards (*Brassica nigra* and other mustards Herbaceous Semi-Natural Alliance)	G5/--	8.90
Annual Brome Grasslands (*Bromus* (*diandrus*, *hordeaceus*) – *Brachypodium distachyon* Herbaceous Semi-Natural Alliance)	N/A	7.02
California Sagebrush Scrub (*Artemisia californica* Shrubland Alliance)	G5/S5	4.08
Coast Live Oak Woodland (*Quercus agrifolia* Woodland Alliance)	G5/S4	2.33
Ornamental Tree Stand (*Pinus halepensis*, *Eucalyptus globulus*, *Schinus molle*, and *Quercus suber* stands)	N/A	2.27
Blue Elderberry Stands (*Sambucus nigra* Shrubland Alliance)	G3/S3, Sensitive	1.13
Laurel Sumac Scrub (*Malosma laurina* Shrubland Alliance)	G4/S4	1.16
Purple Needle Grass Grassland (*Stipa [Nassella] pulchra* Herbaceous Alliance)	G4/S4, Sensitive	0.18
Mulefat Thickets (*Baccharis salicifolia* Shrubland Alliance)	G4/S4	0.06
Palmer's Goldenbush Scrub (*Ericameria palmeri* Shrubland Alliance)	G3/S3?, Sensitive	0.05
Developed/Road (Asphalt and unpaved road)	N/A	1.69
Total		28.87

Status definition:
G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5 Apparently secure, common and abundant
N/A Not Applicable

[1] Vegetation communities identified as "Sensitive" are those considered as such according to the Sensitive Natural Communities list (CDFW 2018c).

3.2.1 Upland Mustards

Upland Mustards (*Brassica nigra* and other mustards Herbaceous Semi-Natural Alliance) vegetation community is generally located in areas where the native vegetation communities were removed by fire, grazing, or mechanical means (e.g., disking). This community is mapped on 8.90 acres of the project site, including the majority of the western portion and on the upper sections of slopes in the eastern portion. The community is dominated by black mustard (*Brassica nigra*), which has a Cal-IPC rank of Moderate and can form dense colonies that overtop other plant species. Additional plants observed in the community that provided substantial coverage were primarily non-native species, some of which are ranked by Cal-IPC (see Appendix G); these included ripgut brome (*Bromus diandrus*), wild oats (*Avena* sp.), poison hemlock (*Conium maculatum*), Italian thistle (*Carduus pycnocephalus*), and jointed charlock (*Raphanus sativus*). Remnant shrubs of the historic native communities that occur very sporadically in Upland Mustards include California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and laurel sumac (*Malosma laurina*).

3.2.2 Annual Brome Grasslands

Annual Brome Grasslands (*Bromus* [*diandrus*, *hordeaceus*] – *Brachypodium distachyon* Herbaceous Semi-Natural Alliance) is mapped on 7.02 acres, primarily on the slopes in the eastern portion of the project site. Ripgut brome is the dominant species, with a Cal-IPC rank of Moderate; it produces a dense groundcover, but numerous grasses and herbaceous annuals, primarily non-native, are also present. Common species observed in the community included foxtail brome (*Bromus madritensis* ssp. *rubens*), foxtail barley (*Hordeum murinum*), wild oat, tocalote (*Centaurea melitensis*), cheeseweed (*Malva parviflora*), and milk thistle (*Silybum marianum*). Remnant shrubs of the historic native communities that occur very sporadically in Annual Brome Grasslands include California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and laurel sumac (*Malosma laurina*).

3.2.3 California Sagebrush Scrub

California Sagebrush Scrub (*Artemisia californica* Shrubland Alliance) is mapped on 4.08 acres of the project site, primarily in the eastern portion. California sagebrush is the dominant species, but California buckwheat, white sage (*Saliva apiana*), long leaf bush lupine (*Lupinus longifolius*), and sticky monkeyflower (*Diplacus longiflorus*) contribute to the shrub component of the community. Native annual herbaceous species observed include clustered tarweed (*Deinandra fasciculata*), California fuchsia (*Epilobium canum*), matchweed (*Gutierrezia californica*), and desert wishbone bush (*Mirabilis laevis*). Non-native annual herbaceous species observed included those found in the Upland Mustard and Annual Brome Grasslands. Along the southern boundary of the project site a patch of prickly pear cactus patch is present, associated with an area of California Sagebrush Scrub along the upper slopes of a ridgeline.

3.2.4 Coast Live Oak Woodland

Coast Live Oak Woodland (*Quercus agrifolia* Woodland Alliance) is mapped on 2.33 acres in in the canyon in the southeastern portion of the site. The community is dominated by coast live oak (*Quercus agrifolia*) with a dense canopy that shades out much of the understory. In the canyon bottom, the community corresponds with Holland's (1986) description of Southern Coast Live Oak Riparian Forest, with an understory that has more herbaceous species than shrub species. Blue elderberry (*Sambucus nigra* ssp. *caerulea*) and poison oak (*Toxicodendron diversilobum*) were the only shrub species observed, with poison oak (vine-like growth form), wild cucumber (*Marah macrocarpa*), and white nightshade (*Solanum americanum*) contributing to the understory composition. Further up the slopes of the canyon, the shrub component increases, with scattered laurel sumac, scrub oak (*Quercus berberidifolia*), and toyon (*Heteromeles arbutifolia*), and the same non-native grasses and herbaceous species found in Upland Mustard and Annual Brome Grasslands.

Classification of the coast live oak woodland represented in Table 2 and Figure 6, and described above, is based on guidelines in Sawyer et al. (2009) and CNPS (2018b). The oak woodland protected per the Los Angeles County Oak Woodlands Conservation Management Plan (County of Los Angeles 2011) is mapped according to different standards, including the requirements set forth in that plan. This sensitive resource is described in Section 3.6, below, and discussed in full detail in the Oak Tree Report (Rincon Consultants 2019a; Appendix F).

3.2.5 Ornamental Tree Stand

Ornamental Tree Stand (*Pinus halepensis*, *Eucalyptus globulus*, *Schinus molle,* and *Quercus suber* stands) is mapped on 2.27 acres of the project site. A number of Aleppo pine (*Pinus halepensis*) are found along the unpaved road, blue gum (*Eucalyptus globulus*) are found along the northwestern boundary, Peruvian pepper (*Schinus molle*) are located on a north facing slope and along Hacienda Boulevard on the eastern portion of the site, and cork oak (*Quercus suber*) were planted on an east facing slope adjacent to the eastern boundary of the project site. The understories were composed of non-native grass and herbaceous species found in Upland Mustard and Annual Brome Grassland.

3.2.6 Blue Elderberry Stands

Blue Elderberry Stands (*Sambucus nigra* Shrubland Alliance) is mapped on 1.13 acres of the project site, in two areas at the center. Blue elderberry dominates both occurrences; they are associated with swale-like drainages of small watersheds created by the ridge. The larger stand has an understory composed of Upland Mustard species and the smaller one has shrub species associated with California Sagebrush Scrub. CDFW considers this alliance a sensitive natural community (CDFW 2018c).

3.2.7 Laurel Sumac Scrub

Laurel Sumac Scrub (*Malosma laurina* Shrubland Alliance) is mapped on 1.16 acres of the project site, along the upper slopes adjacent to the Coast Live Oak Woodland and in the north-central portion. Laurel sumac is the dominant species, with scattered shrubs associated with California Sagebrush Scrub and non-native grass and herbaceous species associated with Upland Mustards.

3.2.8 Purple Needle Grass Grassland

Purple Needle Grass Grassland (*Stipa [Nassella] pulchra* Herbaceous Alliance) is mapped on 0.18 acre of the project site on a north-facing slope in the northeast corner of the project site. Purple needle grass (*Stipa [Nassella] pulchra*) is the dominant species, with the interspace between the bunchgrass supporting blue eyed grass (*Sisyrichium bellum*). The community is adjacent to California Sagebrush Scrub and Annual Brome Grasslands, and components of these two communities are scattered throughout. CDFW considers this alliance a sensitive natural community (CDFW 2018c).

3.2.9 Mulefat Thickets

Mulefat Thickets (*Baccharis salicifolia* Shrubland Alliance) is mapped on 0.06 acre of the project site and is associated with a small drainage in the western portion. Mulefat (*Baccharis salicifolia*) is the dominant species; it forms a dense stand that excludes other shrub species and lacks an understory. The community is contained by the banks of the drainage and is surrounded by Upland Mustard.

3.2.10 Palmer's Goldenbush Scrub

Palmer's Goldenbush Scrub (*Ericameria palmeri* Shrubland Alliance) is mapped on 0.05 acre of the project site, confined to its eastern central portion. This vegetation type is characterized by early-successional shrublands and is dominated by the Palmer's goldenbush (*Ericameria palmeri*). Other species found in this community include California sagebrush and bush sunflower (*Encelia californica*). Non-native species observed in this community included ripgut brome and jointed charlock. It is located adjacent to Upland Mustards and California Sagebrush Scrub. This shrubland alliance is considered a sensitive vegetation community by CDFW (CDFW 2018c).

3.2.11 Developed/Road

Developed and road areas are mapped on 1.69 acres of the project site, including the dirt turnout along Hacienda Boulevard on the east side of the project site, unpaved Draper Road that crosses the project site east to west, and the single family residential property in the northeastern corner of the site. Both the Hacienda Boulevard turnout and Draper Road contain graded, compacted soils with no vegetation other than an occasional weed. The residential property contains one main and one accessory structure surrounded by landscaped areas with ornamental plants.

3.3 General Flora and Fauna

Biological surveys conducted in 2018 and 2019 yielded 70 plant species observed, just over half of which are native (Appendix G), representing a moderate diversity of native species. Non-native species that occupy the project site include wild oat (*Avena* sp.), ripgut brome (*Bromus diandrus*), Russian thistle (*Salsola tragus*), fennel (*Foeniculum vulgare*), tocalote (*Centaurea melitensis*), Italian thistle (*Carduus pycnocephalus*), castor bean (*Ricinus communis*), tree tobacco (*Nicotiana glauca*), and black mustard (*Brassica nigra*), among others. The majority of the project site area is characterized by non-native species cover, particularly upland mustards and annual bromes.

A total of 56 wildlife species were observed during 2018 and 2019 biological surveys, the overwhelming majority of which are native avian species (Appendix G). Wildlife species commonly occurring in developed areas of the region (e.g., raccoon [*Procyon lotor*] and a variety of common avian species) were observed. Despite the dominance of non-native vegetation communities, the site also supports wildlife likely using it in conjunction with adjacent open space to the south and west (e.g., mule deer [*Odocoileus hemionus*], coyote [*Canis* latrans], California striped racer [*Masticophis lateralis lateralis*], great horned owl [*Bubo virginianus*], red-tailed hawk [*Buteo jamaicensis*], and cliff swallow [*Petrochelidon pyrrhonota*], among others).

Biological surveys conducted during the day in the spring and summer would provide only a partial assessment of species; additional species (both native and non-native) are expected. For example, a study in 2013 documented bobcat (*Lynx rufus*) movement across the Puente Hills, including across Hacienda Boulevard adjacent to the project site as it moved between larger open spaces(USGS 2013; Gullo 2018).

The Floral and Faunal Compendium (Appendix G) includes an estimate of population sizes of the flora and fauna observed on the project site. Estimated abundance is described using the terms common (c), fairly common (f), uncommon (u), occasional (o), and scarce (s) (refer to Appendix G for term definitions).

3.4 Special-Status Species

A list of special-status plant and animal species with potential to occur on-site was developed based on a review of a 9-quad search of the CNDDB (CDFW 2018a) and the CNPS's online Inventory of Rare and Endangered Vascular Plants of California (CNPS 2018a). It also included a review of the Los Angeles County Sensitive Bird Species Part I list (Los Angeles County Sensitive Bird Species Working Group 2009) (Appendix H). Assessments for the potential occurrence of special-status species are based upon known ranges, habitat preferences for the species, and species occurrence records from the CNDDB and from other sites in the vicinity of the survey area. The potential was evaluated for each special-status species to occur on the project site according to the following criteria:

- **Not Expected.** Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime). Alternatively, the species was not observed on the site but is so conspicuous that it would have been detected if present (e.g., oak trees).
- **Low Potential.** The species is not likely to be found on the site. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. Alternatively, focused/protocol surveys were conducted and did not detect the species.
- **Moderate Potential**. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- **High Potential.** All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- **Present.** Species is observed on the site or has been recorded (e.g., CNDDB, other reports) on the site recently (i.e., within the last five years).

3.4.1 Special-Status Plant Species

One special-status plant species was observed on the project site during the 2018 biological surveys: island oak (*Quercus tomentella*), California Rare Plant Rank (CRPR) 4.2. Four additional special-status plant species have a moderate or high potential to occur on the project site (Appendix H): Catalina mariposa lily (*Calochortus catalinae*), CRPR 4.2; Plummer's mariposa lily (*Calochortus plummerae*), CRPR 4.2; intermediate mariposa lily (*Calochortus weedii* var. *intermedius*), CRPR 1B.2; and Robinson's peppergrass (*Lepidium virginicum* var. *robinsonii*), CRPR 4.3. These species are discussed below.

Mariposa lily (*Calochortus* sp.)

Status: Depending on species, CRPR of 1B.2 or 4.2

Project Site: **High or Moderate potential to occur**

Each of the three species of mariposa lily is found in valley and foothill grassland, chaparral, and coastal scrub vegetation communities. Catalina mariposa lily (CRPR 4.2) occurs in heavy soils, open slopes, and openings in brush, which coincide with the conditions observed on the project site; it has a high potential to occur on the project site. Plummer's mariposa lily (CRPR 4.2) occurs on rocky and sandy sites, usually of granitic or alluvial material and has several 2005 CNDDB records in the vicinity of the project site (one is less than one mile west and several others are less than one mile east on the other site of Hacienda Boulevard). Intermediate mariposa lily (CRPR 1B.2) occurs on dry, rocky open slopes and rock outcrops and has multiple 2017 CNDDB records less that one mile east of the project site in the same area as the Plummer's mariposa lily records (CDFW 2018a). Both Plummer's mariposa lily and intermediate mariposa lily have a moderate potential to occur on the project site given suitable habitat, but the sparseness of rocky and sandy sites, rocky open slopes, and rock outcrops.

Robinson's Peppergrass (*Lepidium virginicum* var. *robinsonii*)

Status: CRPR 4.3

Project Site: **Moderate potential to occur**

Robinson's peppergrass was observed in 2000 in an area of non-native annual grassland in the northwestern portion of Turnbull Canyon in the Puente Hills, approximately 2.5 miles west of the project site (LSA Associates 2007). General habitat in which this species is found includes chaparral and coastal scrub with dry soils, which are present on the project site. However, this species was not observed during 2018 biological surveys nor is there a CNDDB or CNPS record within five miles of the project site.

Island Oak (*Quercus tomentella*)

Status: CRPR 4.2

Project Site: **Present**

Oak Tree #114 documented in the Oak Tree Report for the project is located on the eastern end of the on-site oak woodland, south of Draper Road (Rincon Consultants 2019a). It is likely a planted individual as this species is native to the Channel Islands of the California coast and Isla Guadalupe off the Baja California coast in Mexico.

3.4.2 Special-Status Wildlife Species

Five special-status wildlife species were observed on the project site during the 2018 biological surveys: Cooper's hawk (*Accipiter cooperii*), coastal cactus wren (*Campylorhynchus brunneicapillus*), turkey vulture (*Cathartes aura*), California towhee (*Melozone crissalis*), and Hutton's vireo (*Vireo huttoni*). Coastal California gnatcatcher was not observed on the project site during 2018 breeding season protocol surveys (Environmental Intelligence 2018). Four additional special-status wildlife species have a moderate or high potential to occur on the project site given the vegetation communities and habitats present (refer to Appendix H): coastal whiptail (*Aspidoscelis tigris stejnegeri*), SSC; coast patch-nosed snake (*Salvadora hexalepis virgultea*), SSC; merlin (*Falco columbarius*), CDFW Watch List; and American badger (*Taxidea taxus*), SSC. These species are discussed below.

Coastal Whiptail (*Aspidoscelis tigris stejnegeri*)

Status: CDFW Species of Special Concern

Project Site: **High potential to occur**

Coastal whiptail can be found in semi-arid areas with sparse vegetation, open areas, including coastal sage scrub and chaparral, and woodland and riparian areas (CDFW 2018a). Suitable open areas and woodlands are present on the project site. The species was noted in a 2005 survey as one of the most widespread reptiles in the Puente Hills Preserve (LSA Associates 2007). Haas et al. (2002) documented the species at a Whittier Hills sampling location approximately three miles west of the project site.

Coast Patch-nosed Snake (*Salvadora hexalepis virgultea*)

Status: CDFW Species of Special Concern

Project Site: **Moderate potential to occur**

Suitable habitat for patch-nosed snake includes brushy or shrubby vegetation and small mammal burrows for refuge and overwintering (CDFW 2018a), which are present on the project site. While it likely historically occurred throughout the Puente-Chino Hills (Haas *et al.* 2002), this species has not been documented within five miles of the project site (CDFW 2018a). During a reptile and amphibian survey at five sites in the Puente-Chino Hills from the spring of 1998 to the fall of 2000, Haas et al. (2002) observed no individuals west of the Chino Hills State Park survey location (the closest survey sites to the project were located in the Whittier Hills and Powder Canyon, each approximately three or more miles away). The Puente Hills Habitat Authority Resource Management Plan also notes the species occurs in the Chino Hills and has potential to occur in the Puente Hills (LSA Associates 2007).

Cooper's Hawk (*Accipiter cooperii*)

Status: CDFW Watch List

Project Site: **Present**

Cooper's hawk was observed perched in the oak woodland on the project site during the 2018 biological resource surveys. It is an uncommon resident in southwestern California. This medium-sized resident hawk can be found in wooded areas with openings or edge habitat nearby (Cornell Lab of Ornithology 2019b; Audubon Society 2019b). It has been found increasingly in leafy suburbs and cities with tall trees serving as nest sites. It feeds mostly on birds and small mammals.

Coastal Cactus Wren (*Campylorhynchus brunneicapillus*)

Status: CDFW SSC, Los Angeles County Sensitive Bird Species Part II List

Project Site: **Present**

Coastal cactus wren is a resident in arid and semiarid regions from southern California, southern Nevada, extreme southwestern Utah, central Arizona, central New Mexico, and central and southern Texas, south into Mexico and Baja California. The species is considered "common" over most of its range. Based on current taxonomic classifications, the *California Bird Species of Special Concern* (Shuford and Gardali 2008) indicates only the sub-populations in Orange and San Diego counties (*Campylorhynchus burnneicapillus sandiegensis*) are considered a CDFW Species of Special Concern (SSC; CDFW 2018d). This species is included as a Los Angeles County Sensitive Bird Species (Part II list; Los Angeles County Sensitive Bird Species Working Group 2009), however; it is considered in some cases to still be treated as an SSC by CDFW considering the coastal population's isolation from interior populations and a life history that is identical, in many ways, with the coastal-slope populations to the south in San Diego County (Cooper Ecological Monitoring, Inc. 2009, 2018). Like the coastal population, those that occur in the Puente Hills are associated with low-elevation cactus scrub in coastal sage scrub. A study in the Puente-Chino Hills in 2000 indicated that cactus wren were noted in extensive patches of cactus surrounded by coastal sage scrub, but that they were also regularly observed at the urban interface and in cactus surrounded by or adjacent to houses; however, sites overrun by non-native grasses were avoided (Cooper 2000). The species is sedentary, highly susceptible to local extinction, and isolated geographically from interior populations.

This species was observed once during the California gnatcatcher protocol surveys, and again during the June 2018 general wildlife survey, in a small patch of prickly pear cactus (*Opuntia littoralis*) located in coastal sage scrub situated on a knoll along the southern boundary of the project site. Nesting was not observed at the time of these observations.

Cooper Ecological Monitoring, Inc. documented three cactus wren territories approximately 2,500 feet or more south and southeast of the project site, on either side of Hacienda Boulevard. Cactus wren has also been observed in Arroyo San Miguel open space near Colima Road, more than 2,000 feet southwest of the project site, most recently in 2007 (Cooper Ecological Monitoring, Inc. 2009). This report concludes that, of the territories detected in 2009, those in the Hacienda Boulevard/Virazon Drive area (approximately 2,500 to 4,000 feet south of the project site) may serve as a link in genetic exchange between sites in the Whittier Hills and the Diamond Bar-Phillips Ranch areas, but that they are most at-risk because there is a lack of protected land and the sites are close to roads and houses.

Turkey Vulture (*Cathartes aura*)

Status: Los Angeles Sensitive Bird Species Part I List

Project Site: Present

Turkey vulture was observed flying over the project site during the 2018 biological resources surveys. Soaring turkey vultures are common over most habitats in the Puente Hills throughout the year, but it is unlikely that they continue to nest there (LSA Associates 2007). This carrion-eating species typically requires a large area for foraging and nests in remote, rocky locations with caves, cliff ledges, and piles of large boulders, none of which are present on the project site. Remaining breeding sites in Los Angeles County have been documented in remote areas of the San Gabriel Mountains, with possibly one pair in the Santa Monica Mountains and another in Whittier Hills (Los Angeles County Sensitive Bird Species Working Group 2009).

Merlin (*Falco columbarius*)

Status: CDFW Watch List

Project Site: Moderate potential to occur

Merlin is a rare fall migrant and winter visitor to southwestern California, preferring open woodlands, savannahs, and grassland edges near the coast. Roosting could occur in clumps of trees or windbreaks in open country. Suitable oak woodland and grassland is present on the project site. While this species was observed in the Puente Hills at an unidentified location(s) (LSA Associates 2007), no CNDDB records for this species are located within five miles of the project site (CDFW 2018a).

California Towhee (*Melozone crissalis*)

Status: Los Angeles County Sensitive Bird Species Watch List

Project Site: Present

California towhee was observed on the project site during the 2018 biological resource surveys. It is not listed as special-status by the USFWS or CDFW, but is identified on the Los Angeles County Audubon Society Watch List (Los Angeles County Sensitive Bird Species Working Group 2009). While locally designated, California towhee is a fairly common bird in chaparral and scrub habitats along coastal slopes and foothills in California. In urban and residential areas this species occupies shrubby backyards and city parks (Cornell Lab of Ornithology 2018).

Coastal California Gnatcatcher (*Polioptila californica californica*)

Status: Federally Threatened, CDFW Species of Special Concern

Project Site: **Not Present**

Coastal California gnatcatcher is the northernmost of three subspecies currently recognized. It is restricted to arid lowland areas and has a range from southwestern California to northwestern Baja California. The remaining two subspecies occur in central and southern Baja California, Mexico. In the U.S., the current range of the coastal California gnatcatcher is generally the counties of San Diego, Orange, Los Angeles, eastern Ventura, and western Riverside and San Bernardino. It is a permanent resident of coastal sage scrub-dominated vegetation communities, generally below 2,000 feet, and while strongly associated with coastal sage scrub, it will also use chaparral, grassland, and riparian plant communities where they occur adjacent to or intermixed with sage scrub. While it is found in coastal sage scrub, not all areas classified as coastal sage scrub are occupied. Shorter, less dense shrubs without a chamise component are generally used for nesting. The coastal California gnatcatcher breeding season extends from about mid-February through late August, with the peak of nesting activities occurring from mid-March through mid-May. California gnatcatcher pairs normally require a minimum of five to ten acres of coastal sage scrub for nesting and foraging (Atwood and Bontrager 2001). Near the coast, breeding pairs have been successful in habitat areas as small as two to three acres. California gnatcatcher have also been observed breeding in smaller patches of suitable sage scrub surrounded by urban development, with the smallest being 0.5 acre (Mock 2004). Mock (1998) concluded that gnatcatchers in the inland region require a larger territory than those on the coast to meet nutritional requirements for survival and breeding. Despite the patchiness of California gnatcatcher distribution, the density of this species tends to be highest in high-quality habitat and decreases as habitat quality decreases.

Estimates of population size within more than 111,000 acres of quality habitat (Winchell and Doherty 2008 in USFWS 2010) indicate it is likely more gnatcatchers are present in the U.S. portion of the range than was suggested by earlier estimates. More than 600,000 acres of habitat have been modeled in southern California. Based on population range estimates by Winchell and Doherty (2008), population size in the U.S. (including San Diego, Orange, Los Angeles, eastern Ventura, and western Riverside and San Bernardino counties) may range from 5,000 to 10,000 pairs.

While the project site is in a larger overall area designated by the USFWS as critical habitat for coastal California gnatcatcher (USFWS 2007; CDFW 2018a), no coastal California gnatcatchers were detected on the project site during nesting season protocol surveys conducted by Environmental Intelligence in May and June 2018. The California gnatcatcher survey report prepared for the project site concludes that the small stands of disturbed native scrub vegetation is only marginally suitable for gnatcatcher (Environmental Intelligence 2018; Appendix D). This scrub habitat is composed primarily of California sagebrush vegetation community, along with laurel sumac distributed sporadically in ruderal vegetation (e.g., mustard, poison hemlock, and non-native grasses). The small and restricted distribution of this habitat on site, combined with the high cover of non-native ruderal species, significantly reduces the habitat value for California gnatcatcher breeding.

A 2017 CNDDB record for California gnatcatcher is present approximately 1,500 feet west of the project site, in a former oil/natural gas field that is now open space managed by the Puente Hills Landfill Native Habitat Preservation Authority (CDFW 2018a). The record includes observations starting in September 1999. It also notes that gnatcatchers were observed in 2002 nesting in sage scrub patches in arroyos. The most recent record in 2017 documents two pairs (one building a nest), one adult male observed on March 27, and one juvenile observed on July 13, all in coastal sage scrub and ruderal habitat.

Hutton's Vireo (*Vireo huttoni*)

Status: Los Angeles County Sensitive Bird Species Watch List

Project Site: **Present**

Hutton's vireo was observed on the project site during the 2018 biological resource surveys. This small, resident songbird is found in western forests and is particularly common in live oak woodlands, feeding primarily on insects and some berries (Cornell Lab of Ornithology 2019a; Audubon Society 2019a). This species has been identified as a Wildland Sensitive Species of the Puente-Chino Hills for Native Woodland habitats, which also reported that it is patchily distributed in the Puente Hills, "generally confined to areas with extensive groves of tall trees along streams" (Scott and Cooper 1999).

American Badger (*Taxidea taxus*)

Status: CDFW Species of Special Concern

Project Site: **Moderate potential to occur**

American badger prefers drier open areas of shrub, forest, and herbaceous habitats with friable soils for digging burrows. Suitable open habitat and friable soils for this species are present on the project site, but no diagnostic sign (e.g., burrows and digs) was observed during the 2018 biological surveys. One American badger was documented as roadkill along Colima Road in 2006, approximately one mile from the project site (CDFW 2018a; LSA Associates 2007).

3.5 Jurisdictional Waters and Wetlands

Five potentially jurisdictional drainage features (labeled Drainages 1 through 5; Table 3, Figure 7) were identified on the project site during the jurisdictional delineation surveys (Rincon Consultants 2019b; Appendix E). All of the features are linear ephemeral drainages with no flowing or standing water at the time of the surveys in May and June 2018 and July 2019. Wetland sampling results for Drainage 1 and Drainage 4 (features identified in the NWI data [USFWS 2018b]) were negative for wetland indicators. These drainages do not support wetlands, but they exhibit defined beds, banks, and channels, and evident OHWMs.

Two drainages (Drainages 1 and 2) have connectivity with downstream features that outlet to the Pacific Ocean. Waters conveyed by these drainages enter an underground storm water system expected to connect to the aboveground concrete Hacienda Channel north of the project site. The Hacienda Channel connects to San Jose Creek (where it is a concrete channel at the connection), approximately three miles north of the project site. San Jose Creek is a tributary to the San Gabriel River, which flows into the Pacific Ocean; both of these are waters of the U.S. Based upon the physical conditions of the two drainages and the downstream connectivity, it is determined that these features are under the jurisdiction of the USACE, the Regional Water Quality Control Board (RWQCB), and CDFW.

Three drainages (Drainages 3, 4, and 5) on the project site are isolated, ephemeral linear features that end on the site or near its boundary. These three features have defined beds and banks (indicating water flows at some point during the year) and/or have riparian vegetation. Based on their isolation, Rincon concluded these features are not waters of the U.S. and not under USACE jurisdiction, but they do fall under CDFW and RWQCB jurisdiction.

Table 3 USACE, RWQCB, and CDFW Jurisdictional Areas

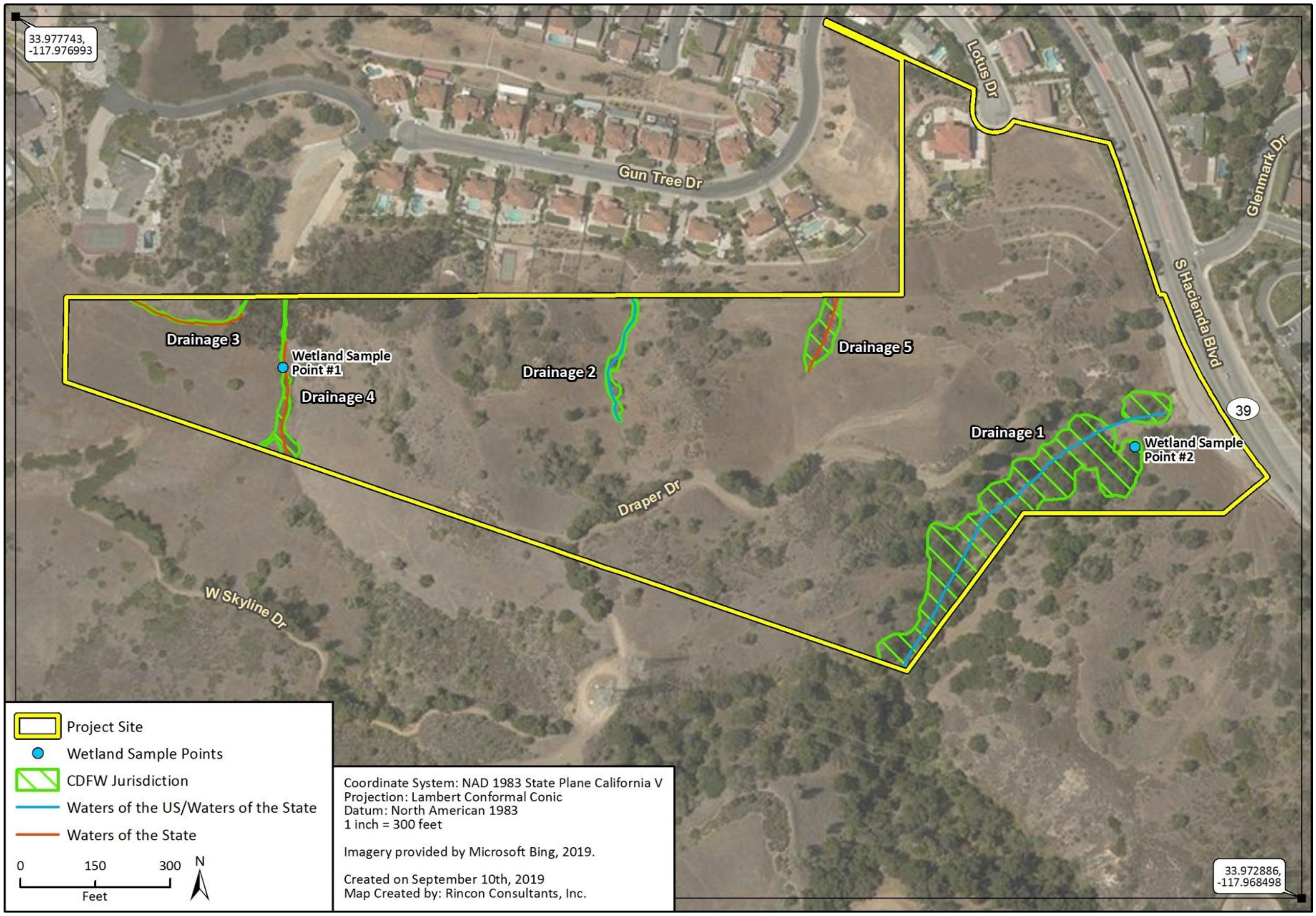
	Waters of the U.S.[1]			
Feature	Non-wetland Waters of the U.S. (acres/linear feet)	Wetland Waters of the U.S. (acres/linear feet)	Waters of the State[1] (acres/linear feet)	CDFW Jurisdictional Streambed[2] (acres/linear feet)
Drainage 1	0.036 acre/774 feet	–/–	0.036 acre/774 feet	1.559 acre/769 feet
Drainage 2	0.006 acre/275 feet	–/–	0.006 acre/275 feet	0.078 acre/275 feet
Drainage 3	–/–	–/–	0.006 acre/251 feet	0.029 acre/310 feet
Drainage 4	–/–	–/–	0.005 acre/229 feet	0.010 acre/242 feet
Drainage 5	–/–	–/–	0.004 acre/165 feet	0.142 acre/168 feet
Total	**0.042 acre/1,049 feet**	**–/–**	**0.057 acre/1,694 feet**	**1.818 acre/1,764 feet**

[1]Calculated to OHWM

[2]Calculated to top of bank or edge of riparian

Additional details and discussion of these potentially jurisdictional resources are provided in the Jurisdictional Delineation Report prepared for the project site (Rincon Consultants 2019b; Appendix E).

Figure 7 Jurisdictional Waters Map



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3.6 Protected Trees and Woodlands

Per the County of Los Angeles Oak Tree Ordinance (Section 22.56.2050 *et seq.*; County of Los Angeles 1988), any tree of the oak genus that meets the following requirements is considered protected:

- The tree has a trunk diameter of eight inches or more (25 inches in circumference), as measured 4.5 feet above mean natural grade
- The tree has multiple trunks, where the combined diameter of any two trunks is 12 inches (28 inches in circumference) or more
- The tree is a heritage oak, where the largest trunk is at least 36 inches in diameter, or the tree has significant historical or cultural importance to the community, notwithstanding that the diameter is less than 36 inches
- The tree was provided as a replacement tree (Section 22.56.2180)

The County of Los Angeles Oak Woodlands Conservation Management Plan (Woodland Plan) (County of Los Angeles 2011) and the accompanying Woodlands Conservation Management Plan Guide (Woodland Guide) (County of Los Angeles 2014) regulate impacts to oak woodlands. The Woodland Guide defines oak woodlands as:

> An oak stand, including its understory, which consists of two or more oak trees (all native trees of the genus *Quercus*) of at least five inches in diameter (of the largest trunk) measured at 4.5 feet above mean natural grade, with greater than 10 percent canopy cover or that may have historically supported greater than 10 percent canopy cover as early as January 1, 2005 (effective date of California Public Resources Code Section 21083.4).

Sixty individually protected oak trees have Protected Zones[2] occurring within the project site (Figure 8; County of Los Angeles 1988). Fifty-four coast live oaks, five cork oaks (*Quercus suber*), and one Island oak (*Quercus tomentella*) were observed on the eastern half of the project site in June 2018. Two coast live oak trees are considered Heritage Trees.

Rincon identified approximately 8.87 acres of oak woodlands (as defined by the Woodland Plan and Guide) on the project site and within a 200-foot survey buffer around the project site (as required by the Woodland Plan). The majority of the woodlands (8.73 acres) are Intact, defined in the Woodland Plan's Existing Conditions Table as being in a "wild" state "where all ecological functions such as groundwater infiltration, shade, habitat, nutrient cycling, carbon sequestration, wind/noise/dust abatement, and the stand is self-sustaining and regenerating" (County of Los Angeles 2014, pg. 11). Invasive grasses and forbs dominate the understory, but the woodland supports associated flora and fauna and has not been subject to destructive land use practices. Two trees are across South Hacienda Boulevard on the northeast corner of the 200-foot buffer survey area, in the adjacent Hsi Lai Buddhist Temple property. These trees make up a severely degraded woodland (0.14 acre) that has been altered and fragmented by paved roadways, cemented sidewalks, and landscaping (County of Los Angeles 2014).

[2] Defined by Los Angeles County Code Section 22.56.2050 *et seq.* as five feet from the dripline, or 15 feet from the trunk, whichever is greater (County of Los Angeles 1988).

Within the 8.87 acres of oak woodlands, 147 native oak trees are protected by the Woodland Plan, 59 of which are located on the project site.[3] Additional details and discussion of protected oak trees and oak woodlands are provided in the Oak Tree Report prepared for the project site (Rincon Consultants 2019a; Appendix F).

[3] The 59 woodland trees present on the project site are considered as such based on whether their Protected Zones (as defined in Los Angeles County Code Section 22.56.2050 *et seq*.) are on the project site.

Figure 8 Oak Tree and Woodland Map

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BCA Fig 11 Oak Woodland

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4 Characteristics of the Surrounding Area

4.1 Surrounding Land Use

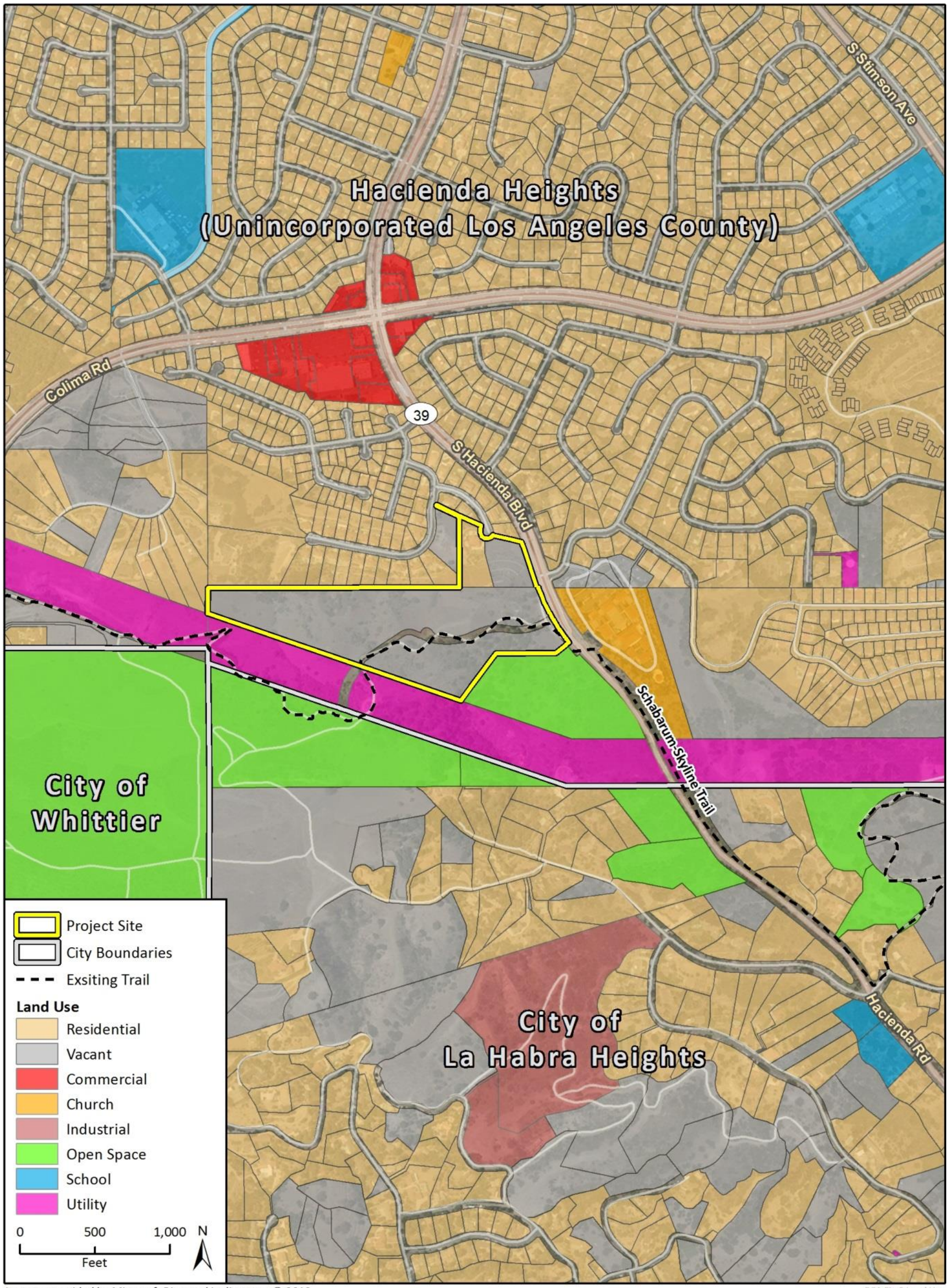
The project site is bounded by residential neighborhoods to the north, open space to the south and west, and Hacienda Boulevard to the east (Figure 2, Figure 3, and Figure 9). A 300-foot-wide utility corridor is adjacent to the southwestern border of the project site. Other than the presence of towers and powerlines, the corridor remains undeveloped though likely managed for brush abatement around the towers. A parcel of Arroyo San Miguel Open Space (managed by the Puente Hills Habitat Preservation Authority, discussed below) is southeast and adjacent to the site; the remainder of the Arroyo San Miguel Open Space comprises a portion of the Puente Hills SEA. This open space is managed for natural resources and low-impact recreation, as described below. Some of the residential-zoned parcels adjacent to the Arroyo San Miguel Open Space remain undeveloped. Clustered development of single-family homes is evident in relatively level areas of Hacienda Heights north of the project site. The residential area in La Habra Heights, south of the project site, occurs on larger parcels in the Puente Hills with greater topographic relief, leading to development that is spread out in the landscape. Parcel shapes in some areas of La Habra Heights has led to placement of homes near parcel boundaries, either adjacent to roads or at the end of long driveways. Residential development in this area generally has infringed upon native vegetation communities; landscaped spaces and brush clearing are evident around homes situated in or abutting naturally vegetated and open areas.

The Los Angeles County Schabarum Skyline Trail –a public access hiking, biking, and equestrian trail—crosses through the project site along Draper Road. Just outside the eastern boundary of the project site, the trail route passes under Hacienda Boulevard and continues into eastern Puente Hills open space connecting to a larger trail network. To the west, the trail continues along Draper Road off the project site connecting to a continuing trail network that includes an unpaved fire road and narrower single-track trails that branch off of it (Figure 9; LSA Associates 2007).

4.2 Habitat Associations and Vegetation Communities

Similar to the project site, the area has experienced historical disturbance, including grazing since at least the early 1950s through the 1980s (HistoricAerials.com 2019). Such disturbance has displaced previously present native habitats, likely contributing to the predominance of non-native vegetation communities, particularly annual grasslands and dense stands of upland mustard throughout the Puente Hills, and particularly within and adjacent to the project site.

Figure 9 Land Use in Project Site Vicinity



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Additional data provided by Los Angeles County, 2018.

Urbanization and suburbanization in the Hacienda Heights and La Habra Heights communities has also intensified in the last 50 years (HistoricAerials.com 2019). The northern and eastern perimeters of the site abut the backyards of a Hacienda Heights residential community (characterized by ornamental landscaping including *Eucalyptus* sp. and Peruvian pepper trees) and Hacienda Boulevard, respectively. The project site’s matrix of native and non-native vegetation communities and habitats interface with intensely developed land uses. In this context, the project site’s vegetation communities and habitats are likely prone to continuous encroachment by non-native plant and animal species that thrive in disturbed and landscaped settings. The site’s location at the urban edge lends it to serve as a buffer for the adjoining open space areas to the south and west. In addition to historic grazing and more recent urbanization and suburbanization, the general project vicinity has a history of wildfire impacts, as does the majority of undeveloped open areas in the Puente Hills (refer to Figure 3 in LSA Associates 2007), likely creating additional opportunities for non-native and invasive species spread during fire recovery periods.

Native vegetation communities documented throughout the open space areas managed by the Puente Hills Habitat Authority Preserve and in the Puente Hills SEA (LSA Associates 2007) are similar to those found on site, and include coastal sage scrub, chaparral, and woodland. For example, the project site’s oak woodland extends onto the adjoining parcel of Arroyo San Miguel Open Space to the southeast, and coastal sage scrub communities that support coastal California gnatcatcher are located approximately 1,500 feet west of the site. However, non-native vegetation communities – notably annual grasslands – are abundantly intermixed among native assemblages. Additional habitats in the Preserve and SEA include significant canyons and riparian resources, isolated cliff and rock communities, agriculture, and developed or otherwise disturbed lands (refer to Figure 4 in LSA Associates 2007). As identified in the Puente Hills Habitat Authority Resource Management Plan (RMP) (refer to Figure 5 in LSA Associates 2007), high-quality vegetation communities are spread throughout the Puente Hills in isolated patches, the majority of which are clustered in its western portion (west of the project site). Two of these mapped areas of high-quality habitat were identified close to the project site, in a parcel of the Arroyo San Miguel Open Space, and which is approximately 1,000 feet or more from the project site.

4.3 Open Space Reserves and Overall Biological Value of the Area

As described above, residential areas occur to the north and south of the project site, with a few undeveloped residential parcels adjoining the Arroyo San Miguel Open Space. The Puente Hills Habitat Preservation Authority developed its RMP in 2007 to guide the long-term management of Authority’s Preserve lands, which consist of 3,860 acres owned by the Authority, City of Whittier, or the Sanitation Districts of Los Angeles County (including the Arroyo San Miguel Open Space) (LSA Associates 2007). The Habitat Authority engages in Preserve management and natural resource management while providing public outreach, hiking, biking, and equestrian trails. The major objectives of the RMP are to “enhance wildlife habitats, develop vegetation management practices, and provide safe, low-impact recreational opportunities and public access” consistent with an Ecosystem Management/Adaptive Management strategy. As presented in the RMP, the Preserve supports a wide diversity of species and native vegetation communities.

The Arroyo San Miguel Open Space parcels in the vicinity of the project site are categorized as part of the Preservation Zone of the RMP (LSA Associates 2007) with Core Habitat identified in La Cañada

Verde and Arroyo Pescadero to the west of the project site. The goal of the Preservation Management Zone is to preserve habitat values along with compatible recreational and access uses.

Additional goals for Habitat Authority Preserve lands described in the RMP include the following:

- Wildlife corridor maintenance under Hacienda Boulevard, including potentially enlarging the tunnel to increase wildlife usage
- Acquisition of parcels in the narrow portion of the Puente-Chino Hills corridor between Powder Canyon and Hacienda Boulevard (to the east of the project site)
- Controlling exotic plants
- Potentially allowing habitat restoration as part of mitigation projects in the Preserve
- Acquiring additional parcels that achieve wildlife corridor/habitat linkage targets especially in constructed areas, contain desirable ecological value in support of sensitive species, function with minimal restoration needed, and allow public access without impeding value to wildlife

The Puente Hills SEA, which encompasses the Authority's Preserve lands and is located 300 feet south of the project site, is a larger area where the County of Los Angeles focuses efforts to manage development with biological resources values in mind, including native vegetation communities, native species, and wildlife habitat and movement needs. It is part of the Puente Chino Hills Habitat Linkage (discussed below) extending from the Cleveland National Forest in Orange County to the west end of the Puente Hills.

According to a biological resources assessment conducted in 2000 by PCR Services Corporation, the Puente Hills SEA "encompasses the major remaining habitat areas in the Los Angeles County portion of the Puente Hills […] The SEA contains relatively undisturbed examples of woodland, shrubland, grassland, and wetland communities that once existed throughout the inland hills complex of the Los Angeles basin. Interconnecting these habitat areas are linkages of native, naturalized, or sparsely developed land." The large acreage of natural open space, diversity of habitat types, and regional connectivity support diverse and abundant species, including year-round resident and migratory song birds, as well as wide-ranging birds of prey and a stable mammal population.

Per the Los Angeles County General Plan (2015b), "nearly the entire SEA is designated as the Puente-Chino Hills State Important Bird Area (IBA) by Audubon California. The main area hosts migrating and resident birds that use the extensive mosaic of lowland terrestrial habitats, and notable extensive areas of grassland and oak and walnut woodlands. This IBA extends well beyond the SEA into Orange and San Bernardino counties, and in general, goes beyond the SEA boundaries in most places. The northwestern disjunct area of the SEA is part of the Los Angeles Flood Control Basin IBA, which hosts many resident and migrating birds that use the wetlands. This IBA extends beyond the SEA on both the Rio Hondo and a long distance upstream along the San Gabriel River."

4.4 Relationship to Biotic Mosaic and Wildlife Movement

Natural movement corridors and habitat linkages have been the focus of several studies intended to better understand relationships between animal populations, open space reserves, and natural movement patterns (e.g., Penrod *et al.* 2001, South Coast Wildlands 2008, and Spencer *et al.* 2010). Roads, railroads, dams, canals, urban development, and agriculture can limit wildlife movement. Fragmentation of large habitat areas into small, isolated segments has been shown to generally reduce biological diversity, eliminate disturbance-sensitive species, restrict genetic flow between populations of organisms, and may eventually lead to the loss of local floral or faunal assemblages.

Wildlife corridors and habitat linkages are important landscape elements that reduce the potential loss in biological diversity. Most smaller project areas (that is, encompassing fewer than several hundred square miles) do not actually fully contain major wildlife movement corridors within their boundaries; however, they may lie along or within such a route, or they may contain smaller, secondary movement pathways or trail systems, with or without major corridor connections. The following discussion begins with large-scale wildlife corridors and proceeds to smaller scale movement pathways, and places the project site within the context of each.

Mapped Corridors or Linkages

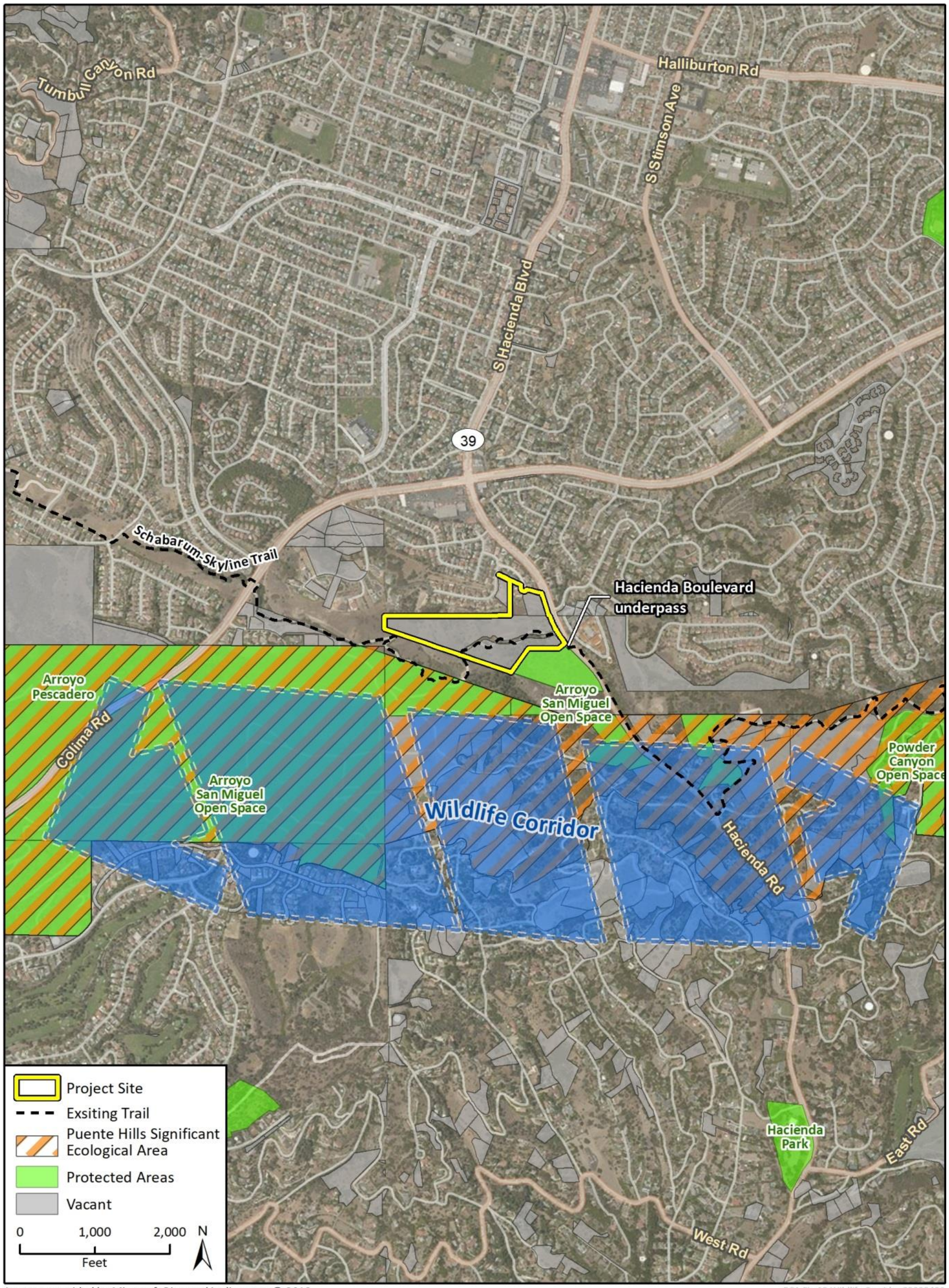
Corridors usually connect one large habitat area with another, and while there is no pre-defined size limit for such areas, they most often are on the scale of mountain ranges, valleys, or clearly demarcated ecological features (i.e., streams or a series of wetlands that allow for movement or migration). The *Missing Linkages: Restoring Connectivity to California Landscape* conference study refers to such corridors as "landscape linkages." These are defined specifically in that report as "large, regional connections between habitat blocks ('core areas') meant to facilitate animal movement and other essential flows between different sections of a landscape (taken from Soulé and Terborgh 1999). These linkages are not necessarily constricted, but are essential to maintain connectivity function in the ecoregion" (Penrod et al. 2001).

Where the through movement of animals has been substantially restricted by urban or agricultural uses, landscape linkages or wildlife corridors may also be considered "chokepoints," defined as "a narrow, impacted or otherwise tenuous habitat linkage connecting two or more habitat blocks ("core areas"). Choke-points are essential to maintain landscape level connectivity, but are particularly in danger of losing connectivity function" (Penrod et al. 2001).

Since the publication of the *Missing Linkages: Restoring Connectivity to the California Landscape* conference study, continued analysis has been conducted by South Coast Wildlands (2008) to develop linkage designs for 15 major landscape linkages in the South Coast Ecoregion. Since then, the California Essential Habitat Connectivity Project (Spencer et al. 2010) completed a similar statewide study for Caltrans and CDFW using a slightly different methodology to determine areas most suitable (also known as "least cost") as pathways to ensure connectivity between large blocks of natural habitat.

While the project site and vicinity are not located in "missing linkages" or in an Essential Connectivity Area defined by either of those studies, they are (a) located within 1,000 feet of a Natural Landscape Block (Spender *et al.* 2010); (b) in the Puente-Chino Hills Regional Habitat Linkage identified by the Los Angeles County General Plan (County of Los Angeles 2015a); and (c) adjacent to land managed by the Puente Hills Habitat Authority for the purpose of maintaining wildlife movement (Figure 10). According to the Los Angeles County General Plan (2015b): "Puente and Chino Hills are a natural, physical link between the Santa Ana Mountains and the San Gabriel River. The San Gabriel River flows from and links to the San Gabriel Mountains. By virtue of these linkages and a complex of interconnected habitat units, the Puente and Chino Hills function as both an important wildlife linkage and resident habitat area for regional wildlife populations." However, it is important to note that as part of their reptile and amphibian study, Haas *et al.* (2000) observed "the Puente-Chino Hills, at a regional scale, more closely resemble a peninsula of habitat extending from the Santa Ana Mountains into the urban matrix of the Los Angeles Basin. On a local scale, however, the open space connecting Chino Hills State Park [east of the project site] with the Whittier Hills [west of the project site] does represent a potential animal movement corridor."

Figure 10 Wildlife Movement Map



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Additional data provided by CPAD, 2018; Los Angeles County, 2018.

Habitat linkages differ somewhat from a wildlife corridor in that they may be identified by the presence of certain resources rather than by areas of linear movement. They may serve as corridors for species that move from site to site as individuals, but for low-mobility organisms (such as plants, flightless arthropods, amphibians, reptiles, chaparral birds) they may serve to continue long-term genetic exchange over a broad area. For these species, directional movement on a population basis may occur slowly via a network of overlapping home ranges on a year-to-year basis. Over many thousands of years, these organisms have been able to cross vast areas of otherwise unsuitable habitat. For species such as amphibians, reptiles, and birds, habitat linkages physically connect separate units of similar habitat value by providing buffer zones or areas of marginal contact. Land uses that retain connectivity between moderate-sized patches of similar-value habitats across an entire property and beyond its boundaries provide better habitat linkage than do designs that set aside larger, but noncontiguous, areas of habitat.

Linkage zones may extend for many miles between primary habitat areas, and their adequacy for supporting genetic flow often depends upon the combined presence of specific resources, sufficient width (to buffer against adjacent disturbances), and sufficient shelter or cover. Certain specific resources (such as rock outcroppings, vernal pools, or oak trees) may be needed at particular intervals to ensure slower-moving species are able to traverse the linkage zone. For highly-mobile or flying organisms, habitat linkages may consist of a series of discontinuous patches of suitable resources, spaced sufficiently close together to permit movement along a route in a short period of time.

In the project site area, the Puente-Chino Hills corridor has an average width of approximately 0.6 mile (between Harbor Boulevard and Colima Road), compared to 5.6 miles at Chino Hills State Park, 0.9 mile at Harbor Boulevard, and 1.9 miles in the Whittier Hills (Haas *et al.* 2000). Situated at the urban edge of the Puente Hills, the project site's vegetation communities and habitats contribute to supporting wildlife movement along this linkage (and beyond to the Chino Hills and Santa Ana Mountains) and provide a buffer from urban land uses for open spaces to the south of the site. Likely the most important habitat contributing to wildlife movement on the project site includes the coast live oak woodland discussed below.

Connectivity Features

Movement pathways, in contrast to the definition of corridors, may provide routes of travel for mobile species, such as mule deer, mountain lion (*Puma concolor)*, coyote or bobcat, but by themselves rarely serve to maintain individual population vigor or support the species on a broad geographic scale. Movement pathways can occur within a habitat core area, as routes into such areas, or as a network of movement pathways and habitat patches within a wildlife corridor. Pathways may become well established, but may be altered should obstructions occur and when alternative routes are available. Movement pathways occur at a small scale, typically in terms of a few feet wide to a few hundred feet wide, such as the width of a stream or riparian corridor. Depending on the species and the nature of the obstruction, particular pathways may be important to local species survival, especially when alternative routes are lacking. Movement pathway systems are the more common sort of linkages encountered on small to moderate-sized sites. Topography (drainages and ridgetops) and vegetation that provides cover for species movement are often the location of local movement pathways. Local movement pathways may also be associated with culverts and bridges under and over major barriers.

Connectivity features such as the oak woodland and the Schabarum Skyline Trail provide a linkage from east to west across Hacienda Boulevard and vegetative cover in the woodland for those wildlife species that move through it, particularly for mammals (Figure 8 and Figure 10). This connection can provide wildlife (in addition to hikers, bikers, and equestrians) access to open and undeveloped landscapes within the Puente Hills on both side of Hacienda Boulevard. However, continued challenges to wildlife crossing Hacienda Boulevard (where average width of the Puente-Chino Hills Corridor is narrower than surrounding areas) may include the steep slopes and adjacent housing (LSA 2007). In addition, a study conducted by Haas and Crooks (1999) found that use of the Hacienda Boulevard underpass adjacent to the project site was limited to raccoons and cats (*Felis catus*), while documentation of coyotes and other species on either side of the Boulevard suggested surface crossings. The study found that a more widely used crossing point was located at the intersection of Hacienda Boulevard and Skyline Drive, just south of the underpass. The study concludes that the underpass' limiting factors for native species included high dog (*Canis lupus familiaris*) activity in the area as well as lack of fencing and natural cover leading to the underpass.[4] Yet, for the Puente Hills SEA in general (extending east and west south of the project site), the Los Angeles County General Plan (2015b) notes that continued use of undercrossings and surface crossings by wildlife have been documented with movement largely east-west, including bobcat, coyote, gray fox (*Urocyon cinereoargenteus*), and mule deer.

Additional vegetation communities present on the project site and in the vicinity complement the function of the oak woodland and the Schabarum Skyline Trail as a connectivity feature, for those species that use them. However, the dominance of non-native vegetation (e.g., tall stands of mustard and poison hemlock, non-native grasslands) encroach upon and create islands of the on-site and adjacent native vegetation communities, serving as a potential obstacle to seamless wildlife movement and offering less value to many native species that are the target of conservation. For example, the 2018 biological resource surveys documented the poor quality of coastal sage scrub on site for potential coastal California gnatcatcher habitat (Environmental Intelligence 2018). The function and use of the on-site vegetation communities as stepping stone habitat, particularly by urban-averse wildlife species, can be limited by the location of the site nestled into a corner of urban development (with residences to the north and Hacienda Boulevard to the east). However, some species who are more tolerant of adjacent urban uses, such as the coastal cactus wren observed on the project site, could find value in the remnant native habitats such as the prickly pear cactus patch surrounded by coastal sage scrub located along the southwestern perimeter of the project site. While some species may use the Hacienda Boulevard underpass, as noted above, those that are (a) easily deterred by higher levels of human activity and presence of domestic pets, or (b) are less likely to use an underpass to access habitat patches across movement obstacles (such as roads), would likely find other valuable connections in the larger areas of native habitats in the Puente Hills SEA, utility corridor, and Arroyo San Miguel Open Space to the south of the project site.

4.5 Biological Constraints on the Project Site

The biological constraints of the project site were evaluated based on the presence of sensitive resources and habitat as well as wildlife movement values in the context of the Puente Hills and adjacent open space and SEA.

"High" resource values include those resources that have a sensitive or special-status designation at the federal, state, or local level. These include blue elderberry stands, purple needle grass grassland,

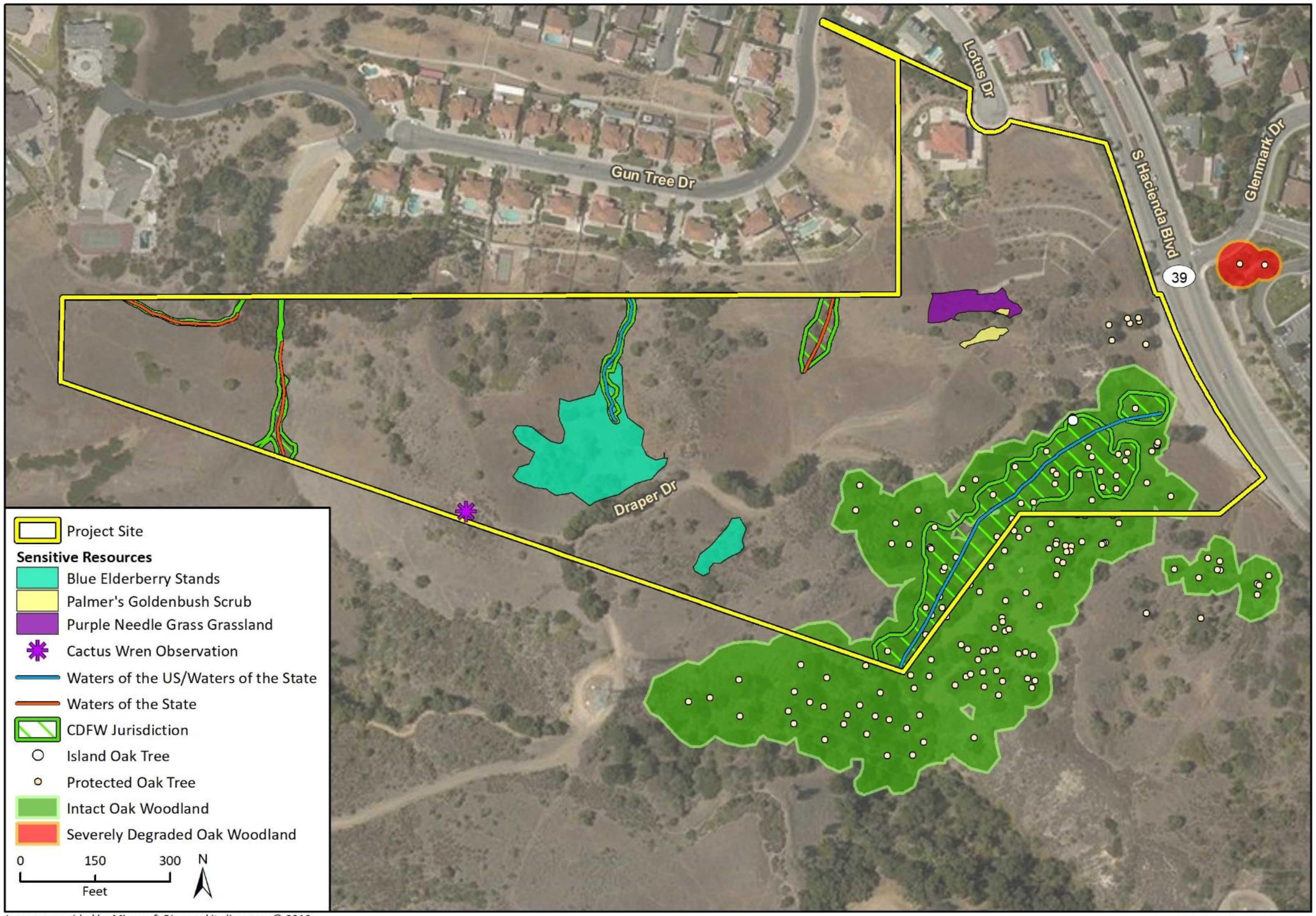
[4] Conditions in the vicinity of the project area as described in Haas and Crooks (1999) have not significantly changed since the time the study was conducted relative to the time during which surveys were conducted to prepare this Biological Constraints Analysis. As a result, it is likely the same challenges to wildlife use of the Hacienda Boulevard underpass still exist.

and Palmer's goldenbush scrub (CDFW Sensitive Natural Communities), island oak tree (oak tree #114) documented in the Oak Tree Report (Rincon Consultants 2019a), federal and state jurisdictional waters and wetlands (CDFW, RWQCB, and USACE jurisdiction), protected oak trees (Los Angeles County 1988), protected oak woodland (Los Angeles County 2011) that serves as a connectivity feature for wildlife movement, and prickly-pear cactus and coastal sage scrub that could serve as habitat for the cactus wren (CDFW SSC) (Figure 11).

"Moderate" resource values include those that provide habitat value to native species and primarily include native vegetation communities on the project site, including California sagebrush scrub, laurel sumac scrub, and mulefat thickets (refer to Figure 6). "Low" resource values include those that provide the least habitat value to native species and primarily include non-native vegetation communities and disturbed/developed land covers on the project site, including annual brome grassland, developed/road, ornamental tree stand, and upland mustard.

Figure 12 presents these resource values and corresponding constraint levels, color-coded according to the categorization described above.

Figure 11 High Resource Values Map



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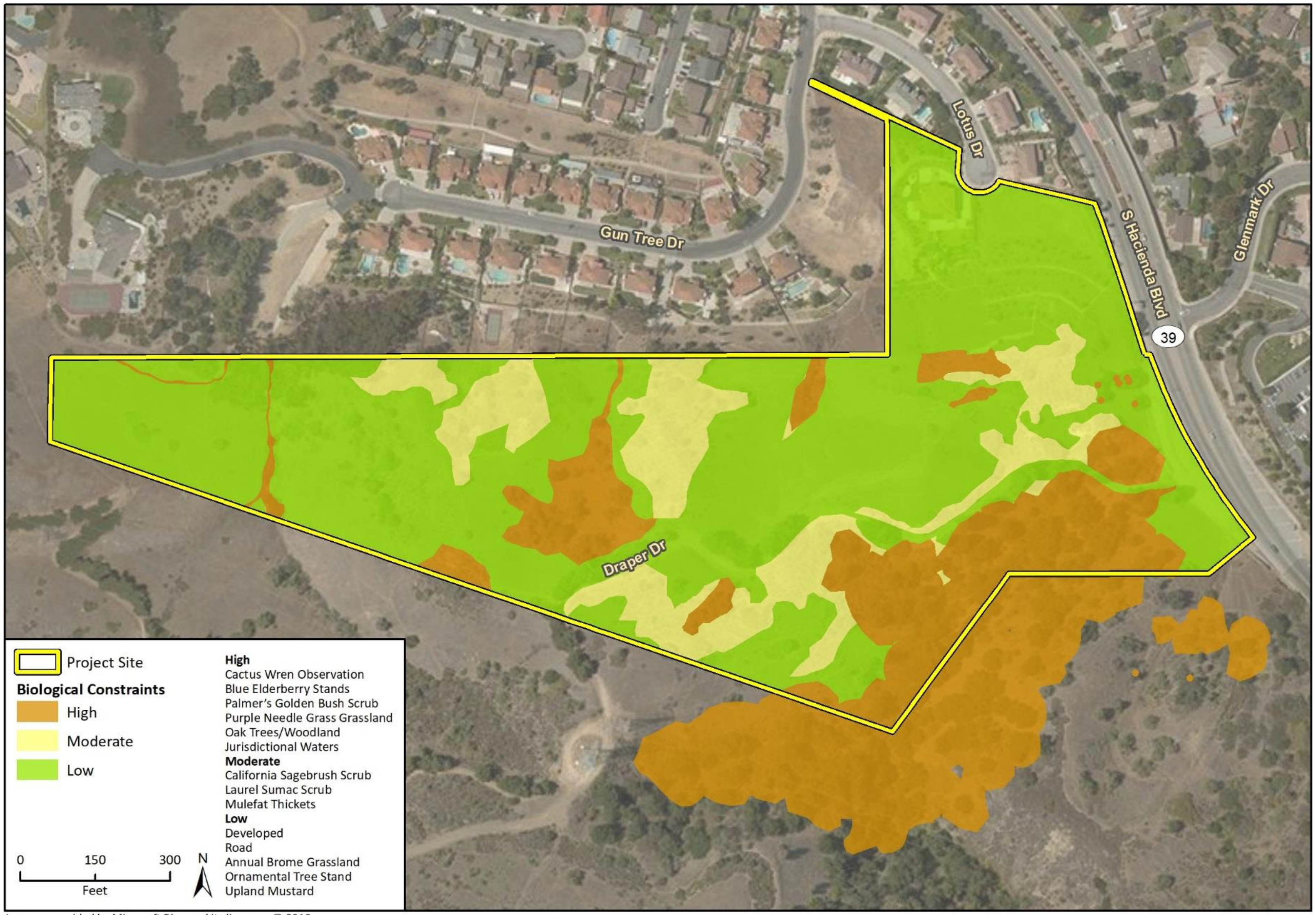
BCA Fig 11 Sensitive Resources

Figure 12 Biological Constraints Map



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BCA Fig 12v2 Biological Constraints

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5 Conclusion

The information presented in this BCA encompasses the results of general and focused biological surveys conducted recently on the project site, an extensive literature review, database searches of recent and historical records of biological resources in the area, and the findings of representative available studies conducted in the Puente-Chino Hills area over the last 20 years. The level of research and survey effort undertaken provides a relatively complete understanding of the project site's existing conditions and biological resources in the context of the region in which it is located including plant and wildlife species, vegetation communities, waters and wetlands, wildlife movement through the site and in the vicinity, and locally important resources. In addition, the BCA evaluates the function of the project site relative to the Puente-Chino Hills wildlife linkage and the Puente Hills SEA that is located 300 feet to the south. Additional biological studies are not recommended at this time, as the information included in this report is sufficient to support CEQA review, including analyses of potential impacts to special-status species, sensitive resources, and wildlife movement, and recommendation of suitable avoidance, minimization, and mitigation measures. Because the site was located in a Conceptual SEA and not in a full SEA at the time this analysis was conducted, and because the project applicant's zoning application was formally deemed complete by the Department of Regional Planning staff prior to the effective date of the updated SEA ordinance, the project is exempt from consideration under the updated SEA ordinance. Therefore, the analysis is not required to and does not describe on-site and adjacent resources in terms of SEA Resource Categories. However, while this BCA's structural organization varies from the example provided in the County's BCA Checklist, it contains all required content in an effort to fully inform the County's upcoming review of the project under CEQA.

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6 Limitations, Assumptions, and Use Reliance

This Biological Constraints Analysis was performed in accordance with professionally accepted biological investigation practices conducted at this time and in this geographic area. The biological investigation is limited by the scope of work performed. The biological surveys conducted are limited by the environmental conditions present at the time of the surveys. In addition, general biological (or protocol) surveys do not guarantee that the organisms are not present and will not be discovered in the future on the site. In particular, mobile wildlife species could occupy the site on a transient basis, or re-establish populations in the future. Our field studies were based on current industry practices, which change over time and may not be applicable in the future. No other guarantees or warranties, expressed or implied, are provided. The findings and opinions conveyed in this report are based on findings derived from site reconnaissance, jurisdictional areas, review of CNDDB RareFind5, and specified historical and literature sources. Standard data sources relied upon during the completion of this report, such as the CNDDB, may vary with regard to accuracy and completeness. In particular, the CNDDB is compiled from research and observations reported to CDFW that may or may not have been the result of comprehensive or site-specific field surveys. Although Rincon believes the data sources are reasonably reliable, Rincon cannot and does not guarantee the authenticity or reliability of the data sources it has used. Additionally, pursuant to our contract, the data sources reviewed included only those that are practically reviewable without the need for extraordinary research and analysis.

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Appendix A

List of Preparers and Contributor Experience

List of Preparers and Contributor Experience

List of Preparers

Rincon Consultants, Inc.

Authors

Brenna Vredeveld, Senior Biologist
Michael Cady, Senior Biologist

Technical Review

David Daitch, PhD, Program Manager/ Senior Biologist
Christopher Julian, Principal/ Senior Regulatory Specialist, SEATAC-approved biologist
April Durham, PhD, Senior Technical Editor

Graphics

Jonathan Montgomery, GIS Specialist

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Field Surveys

Brenna Vredeveld, Senior Biologist
Michael Cady, Senior Biologist
Megan Minter, Senior Biologist
Lily Sam, Associate Biologist
Clarissa Rodriguez, Associate Biologist
Stephanie Lopez, Senior Biologist, ISA Certified Arborist
Kyle Weichert, Associate Biologist, ISA Certified Arborist
Yuling Huo, Associate Biologist, ISA Certified Arborist

Environmental Intelligence, LLC

Coastal California Gnatcatcher Protocol Surveys

Scott Duff, Staff Biologist, USFWS Permit TE 59586B-0

Contributor Experience

Brenna Vredeveld, Rincon Senior Biologist

Ms. Vredeveld has over ten years of experience in ecosystem monitoring and reporting, natural resources planning, and federal and local regulatory processes, particularly at the urban-wildland interface. Her diverse work experience includes a broad cross-section of clients and partners in California and Latin America covering long-range natural resource management plans, research, scientific and technical reports, social and environmental assessments, CEQA, National Environmental Policy Act (NEPA), facilitating stakeholder consensus, coordinating interdisciplinary collaboration, managing fieldwork, and GIS analyses. Her responsibilities at Rincon include preparation of complex technical reports and integrated planning documents, resource constraints analyses, habitat assessments, overseeing fieldwork, managing environmental compliance monitoring, and coordinating with regulatory agencies. For the last seven years she has managed projects for local, state, and federal agencies across southern California's unique habitats.

Michael Cady, Rincon Senior Biologist

Mr. Cady has worked as an environmental consultant for over 14 years, with experience in both fieldwork and in the application of environmental principles and regulatory requirements to the planning process. He has worked extensively in a variety of habitats and jurisdictions throughout California, and also has project experience in Nevada and Arizona. Mr. Cady's field experience includes protocol surveys and habitat assessments for a variety of special-status species, rare plant surveys, flora and fauna surveys, oak and general tree surveys, vegetation mapping, and nesting bird surveys. Mr. Cady has conducted wetland delineations in accordance with Federal (USACE) and State (Coastal Commission, CDFW, and CRWQCB) guidelines for a variety of aquatic resources in southern California, and has done the permitting for the acquisition of the federal Clean Water Act Section 401 and 404 certifications, and Fish and Game Code Section 1602 SAA. Mr. Cady has produced CEQA/NEPA compliant documents in support of the attainment of various permits and approvals for a variety of projects in southern California. This includes the production of biological technical reports for Environmental Impact Reports (EIR)/Environmental Impact Statements (EIS), Mitigated Negative Declarations (MND), Conditional Use Permits, and General Plan Amendments. In addition, he has prepared permit applications and documentation to support ESA Section 7 and 10 consultations, and CESA 2081 permitting. Mr. Cady's compliance monitoring experience includes both large-scale infrastructure projects and smaller projects within sensitive habitats. He has provided environmental inspection for simple to complex projects. As a restoration biologist, Mr. Cady has produced state and federally-approved habitat mitigation and monitoring plans for a variety of habitats. He has also participated in the implementation and monitoring of restoration projects that have successfully met their mandated criteria.

David Daitch, Rincon Program Manager/ Senior Biologist

Dr. David Daitch serves as a program manager and senior biologist for Rincon. He has over 20 years of professional experience providing biological and paleontological environmental services. As a biologists and paleontologist, Dr. Daitch has over 15 years of environmental consulting experience managing projects, coordinating and conducting field surveys, consulting with federal, state and local agencies, and producing and editing technical scientific documents for private industry, regulatory agencies, and publication. Dr. Daitch prepares, and oversees the preparation of technical reports, permit applications, CEQA and NEPA documents, and compliance reports, ensuring proper QA/QC of all environmental documents. He works directly with clients, lead agencies, resource agencies and other stakeholders to ensure successful project execution and submission of high-quality technical documents.

Dr. Daitch manages large-scale projects with a focus on renewable energy, but including a wide range of projects from commercial and residential development, to transmission and transportation projects. He has managed projects budgets of several million dollars. He oversees all aspect of environmental services from front-end constraints analysis, to preparation of complex technical documents to support CEQA and NEPA environmental review, to resource permitting. Dr. Daitch also manages compliance-phase projects overseeing project compliance during construction for private developers and as third-party compliance oversight for lead agencies.

Christopher Julian, Rincon Principal/ Senior Regulatory Specialist, SEATAC-approved Biologist

Mr. Julian has over 15 years of postgraduate work experience as an environmental consultant, including eight years as an interdisciplinary project manager. His technical emphases include environmental analyses under NEPA and CEQA, all aspects of state (California) and federal stream and wetlands permitting (including agency coordination and negotiations, jurisdictional determination, wetlands functional assessment, and 404(b)(1) analysis), and endangered species permitting. He has effectively assisted clients with designing projects to ensure compliance with agency regulations, and has managed and prepared highly complex CEQA, NEPA, and ESA documents. Mr. Julian also has an extensive stream ecology background, encompassing lake and stream bioassessments, surveys for common and special-status aquatic wildlife species, and mapping of aquatic habitats. He has managed and conducted reconnaissance- and protocol-level surveys for threatened and endangered plants and animals, including the California red-legged frog, tidewater goby, blunt-nosed leopard lizard, desert tortoise, and others. Mr. Julian is a Los Angeles County-approved biologist for preparation of Biological Constraints Analyses.

Megan Minter, Rincon Senior Biologist

Ms. Minter is a biologist and wetland specialist who has worked in environmental consulting for 10 years. She has a strong scientific and regulatory background. Her experience includes numerous biological resource assessments, wetland delineations, conducting focused protocol surveys pursuant to the USFWS and various Natural Community Conservation Plans/Habitat Conservation Plans, preparing technical sections in compliance with CEQA and NEPA requirements, and acquiring Federal and State environmental permits including Clean Water Act Section 404, 401, and California Department of Fish and Wildlife Section 1602 agreements. Ms. Minter has extensive experience preparing CEQA/NEPA compliant documents in support of the attainment of various permits and approvals for a variety of projects in Southern California. This includes the production of biological technical reports for EIR/EIS, MNDs, CUPs, and other CEQA documents. Ms. Minter's background includes extensive service to energy utilities, solar developers, pipeline groups, cities, as well as residential and commercial land developers throughout Southern California. Ms. Minter's compliance monitoring experience includes both large-scale infrastructure projects and smaller projects within sensitive habitats.

Lily Sam, Rincon Associate Biologist

Ms. Sam is a biologist with over six years of experience in wildlife/construction monitoring, nesting bird and wildlife surveys, taxonomic classifications and identifications of marine mollusks, polychaetes, and fish. She has led studies investigating the feeding preferences of the megalope larvae of *Cancer magister* (Dungeness crab), as well as the settlement of *Ostrea lurida* (native oyster) larvae in southern California. She has extensive SCUBA diving experience and has completed an American Academy of Underwater Sciences (AAUS) Scientific Diver 100-hour course as well as her Rescue Diver and Master Diver training. Ms. Sam has also had extensive management experience as lead monitor for two major, high profile construction projects.

Clarissa Rodriguez, Rincon Associate Biologist

Ms. Rodriguez has extensive experience in plant surveys, identification, vegetation mapping, restoration, and field data analysis in habitats throughout Southern California. She is currently pursuing her PhD at the University of California, Riverside in botany and is expected to graduate in 2023.

Stephanie Lopez, Rincon Senior Biologist, ISA Certified Arborist

Ms. Lopez serves as an arborist, biologist and project manager with over 10 years of consulting experience involving biological resource identification, special-status species surveys, and impact analysis. She has been certified as an arborist by the International Society of Arboriculture (WE-10442A). Ms. Lopez has experience throughout southern California in conducting both general and focused botanical surveys. Through her biological field survey design and project management experience, she has led field teams in remote areas to conduct data collection, research and analysis of listed desert and alpine species (flora and fauna). Her experience includes tree inventories, implementation of tree protection plans including all aspects of construction monitoring and mitigation, tree and habitat health assessment, focused rare plant surveys and general botanical inventories. Additionally, Ms. Lopez has authored numerous Biological Resource Assessments, USFWS Habitat Assessments & Environmental Assessments, and conducted impact analyses for Threatened & Endangered plants and animals, wildlife, wetlands, and riparian habitats for Environmental Impacts Assessments.

Kyle Weichert, Rincon Associate Biologist, ISA Certified Arborist

Mr. Weichert is an Associate Biologist and International Society of Arboriculture Certified Arborist (WE -12113A) with Rincon's biological resources group. Mr. Weichert has experience conducting a variety of arboricultural surveys throughout much of California, including tree inventories, tree health assessments, tree pruning documentation, and tree valuations. In addition, Mr. Weichert has prepared a variety of arboriculture-related report and plans including arborist reports, tree health monitoring reports, tree mitigation plans, tree protection and preservations plans, tree fencing plans, and tree relocation plans.

Mr. Weichert also has experience since 2007 conducting general and focused surveys for many plant species and vegetation types including rare plant surveys, botanical inventories, vegetation classification and mapping, and vegetation assessment. Mr. Weichert also has experience with implementing and monitoring habitat and vegetation restoration projects, and collecting and processing plant vouchers and specimens for submittal to herbaria.

Yuling Huo, Rincon Associate Biologist, ISA Certified Arborist

Ms. Huo is a biologist with three years of professional experience as an arborist (International Society of Arboriculture Certified Arborist, WE – 11975A) and general biologist in the environmental consulting field and a four year degree in environmental studies. She has extensive experience working with California riparian flora and fauna and jurisdictional waterways. She has worked extensively with coast live oaks and oak woodlands, as well as other California native trees such as California black walnut, California sycamore, and arroyo willow, and is proficient in tree/plant biology.

Scott Duff, Environmental Intelligence Staff Biologist

Mr. Duff is a USFWS-permitted biologist for coastal California gnatcatcher surveys (TE 59586B-0). Refer to attached permit.

DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE
Endangered Species Permit Office
2800 Cottage Way, Suite W-2606
Sacramento, CA 95825-1846
permitsR8ES@fws.gov

FEDERAL FISH AND WILDLIFE PERMIT

1. PERMITTEE

SCOTT M DUFF
3733 N. HARBOR BLVD #62
FULLERTON, CA 92835
U.S.A.

2. AUTHORITY-STATUTES
16 USC 1533(d)
16 USC 703-712

REGULATIONS
50 CFR 17.32
50 CFR 21.23 & 21.27

50 CFR 13

3. NUMBER
TE59586B-0

4. RENEWABLE
☒ YES
☐ NO

5. MAY COPY
☒ YES
☐ NO

6. EFFECTIVE
07/24/2015

7. EXPIRES
07/23/2018

8. NAME AND TITLE OF PRINCIPAL OFFICER *(If #1 is a business)*

9. TYPE OF PERMIT
NATIVE THREATENED SP. RECOVERY - T WILDLIFE; MIGRATORY

10. LOCATION WHERE AUTHORIZED ACTIVITY MAY BE CONDUCTED
ON LANDS SPECIFIED WITHIN THE ATTACHED SPECIAL TERMS AND CONDITIONS

11. CONDITIONS AND AUTHORIZATIONS:

A. GENERAL CONDITIONS SET OUT IN SUBPART D OF 50 CFR 13, AND SPECIFIC CONDITIONS CONTAINED IN FEDERAL REGULATIONS CITED IN BLOCK #2 ABOVE, ARE HEREBY MADE A PART OF THIS PERMIT. ALL ACTIVITIES AUTHORIZED HEREIN MUST BE CARRIED OUT IN ACCORD WITH AND FOR THE PURPOSES DESCRIBED IN THE APPLICATION SUBMITTED. CONTINUED VALIDITY, OR RENEWAL, OF THIS PERMIT IS SUBJECT TO COMPLETE AND TIMELY COMPLIANCE WITH ALL APPLICABLE CONDITIONS, INCLUDING THE FILING OF ALL REQUIRED INFORMATION AND REPORTS.

B. THE VALIDITY OF THIS PERMIT IS ALSO CONDITIONED UPON STRICT OBSERVANCE OF ALL APPLICABLE FOREIGN, STATE, LOCAL, TRIBAL, OR OTHER FEDERAL LAW.

C. VALID FOR USE BY PERMITTEE NAMED ABOVE.

D. Further conditions of authorization are contained in the attached Special Terms and Conditions.

☒ ADDITIONAL CONDITIONS AND AUTHORIZATIONS ALSO APPLY

12. REPORTING REQUIREMENTS
ANNUAL REPORT DUE: 01/31

ISSUED BY	TITLE	DATE
FOR	ENDANGERED SPECIES DIVISION CHIEF	07/24/2015

SPECIAL TERMS AND CONDITIONS
Scott Duff

1. Acceptance of this permit serves as evidence that the permittee understands and agrees to abide by the "General Permit Procedures and Permit Regulations for Native Endangered and Threatened Wildlife Species Permits," 50 CFR Part 13, 50 CFR 17.21 and 17.22 (endangered wildlife) and/or 50 CFR 17.31 and 17.32 (threatened wildlife), as applicable found at: http://www.fws.gov/carlsbad/r8permits/permitprocedures-regulations.htm

2. The permittee must have all other applicable State and Federal permits prior to the commencement of activities authorized by this permit. In addition, this permit does not authorize access to Federal, Tribal, State, local government, or private lands as it is the responsibility of the permittee to obtain land owner permission prior to commencing permitted activities on such lands.

3. The permittee is authorized to take (harass by survey) the coastal California gnatcatcher (*Polioptila californica californica*, gnatcatcher) in conjunction with survey activities for the purpose of enhancing their survival, as specified in the permittee's October 27, 2014, request for a new permit, in accordance with the conditions stated below.

4. Permitted activities are restricted to the following geographic areas in California:

   Throughout the range of the species.

   Notifications to conduct activities pursuant to this permit at specific locations within the above referenced areas must be submitted in writing to the Recovery Permit Coordinator at the appropriate Fish and Wildlife Office (FWO) of the U.S. Fish and Wildlife Service (Service) 15 days prior to conducting such activities. Pre-survey notification may be submitted electronically if pre-arranged with the Recovery Permit Coordinator at the appropriate FWO. The appropriate FWO is determined as follows:

   Carlsbad Fish and Wildlife Office (CFWO):
   For areas from Los Angeles County east of the Santa Monica pier and east of the 405 freeway, south of and including the San Gabriel Mountains, and east and north of the San Andreas Rift Zone; in Kern County south and east of the Tehachapi Mountains and east of the Piute and Scodie Mountains; in Inyo County east of the Owens Valley; then south to the U.S. border with Mexico including San Bernardino, Riverside, Orange, Imperial, and San Diego Counties in their entirety, contact the Carlsbad Fish and Wildlife Office, 2177 Salk Avenue, Suite 250, Carlsbad, California 92008 (telephone: 760-431-9440).

   Ventura Fish and Wildlife Office (VFWO):
   For areas from Los Angeles County north and west of the Santa Monica pier, west of the 405 freeway, north of the San Gabriel Mountains, and west of the San Andreas Rift Zone; Ventura County; Santa Barbara County; areas in San Luis Obispo County west of the Carrizo Plain; and Monterey, San Benito, and Santa Cruz Counties in their entirety, contact the

Ventura Fish and Wildlife Office, 2493 Portola Road, Suite B, Ventura, California 93003 (telephone: 805-644-1766).

Notifications will include, as appropriate and applicable, a) an explanation of the purpose of the study, b) the names and permit numbers of personnel conducting the work, c) a clear description of the methods to be used, d) the number and dates of activity, e) a map (at a minimum, a 1:24,000 scale U.S. Geological Survey (USGS) topographical map) depicting the location and boundary of the activity area(s), f) the assessor's parcel number for the site (if possible), and g) geographic information system (GIS) data depicting the activity area(s) or global positioning system (GPS) coordinates (if possible).

After 15 days of the Service's receipt of the notification, the permittee may commence activities authorized by this permit unless authorization is denied by the Service. If the permittee is denied authorization to conduct the proposed activities at the requested location(s), including previously authorized sites, a request for reconsideration may be submitted to the Endangered Species Division Chief at the Service's Regional Office for the Pacific Southwest Region (Region 8), 2800 Cottage Way, Room W-2606, Sacramento, California 95825-1846, as provided in 50 CFR 13.29. The procedures specified in 50 CFR 13.29(b) must be followed.

5. Authorized individuals:

Only individuals on the attached List of Authorized Individuals (List) are authorized to conduct activities pursuant to this permit. The List, printed on Service letterhead, may identify special conditions or circumstances under which individuals are authorized to conduct permitted activities and must be retained with these Special Terms and Conditions. Each named individual will be responsible for compliance with the terms and conditions of this permit.

To request changes to the List, the permittee must submit written requests to the Recovery Permit Coordinator at the CFWO at least 30 days prior to the requested effective date. The request must be signed and dated by the permittee and include:

a. The permit number.

b. The name of each individual to be appended to the List.

c. The resume/qualifications statement of each person to be appended to the List, detailing their experience with each species and type of activity for which authorization is requested.

d. The names, phone numbers and email addresses of a minimum of two references including letters of reference. Letters of reference should address the individual's qualifications for the specific activities to be conducted.

e. The names of the individuals to be deleted from the List.

Note: This procedure is for personnel changes only. For requests to renew/amend this permit, a complete application must be submitted to the Endangered Species Division Chief at the Region 8 office.

6. Taking of the coastal California gnatcatcher:

   The permittee is authorized to conduct surveys for gnatcatchers using recorded vocalizations, within the geographic boundaries specified above and the time limitation specified in the permit, provided that:

   a. The permittee conducts all presence/absence surveys in accordance with the approved *Coastal California Gnatcatcher Presence/Absence Survey Guidelines*, dated February 28, 1997 for gnatcatcher surveys unless authorized in advance by the Recovery Permit Coordinator at the appropriate FWO. The current approved survey guidelines can be retrieved at the following address: (http://www.fws.gov/ventura/endangered/species/surveys-protocol.html)

   b. Recorded vocalizations are used only until individuals have been initially located and not to elicit further behavior.

   c. Surveys are not conducted during inclement weather conditions that would significantly reduce the ability to detect the species or expose nest contents to the elements (e.g., rain, strong wind, fog).

   d. If a gnatcatcher nest is inadvertently found, observers should move away slowly to avoid startling the birds or force-fledging the young. Avoid physical contact with the nest or nest vegetation, to prevent physical disturbance and leaving a scent. Do not leave the nest area by the same route, to prevent making a dead end trail that could guide a potential predator to the nest. Mark the general nest location using GPS no closer than 30 feet from the nest.

   e. Locating and monitoring nests, the removal of brown-headed cowbird (*Molothrus ater)* eggs and chicks from parasitized nests, capture, band, color band, release, or biological sampling (feather or blood collection) is not authorized pursuant to this recovery permit.

7. Within 45 days following completion of a presence/absence survey for the gnatcatcher a report will be submitted to the Recovery Permit Coordinator at the appropriate FWO that includes: a) a map (at a minimum, a 1:24,000 scale USGS topographic map) depicting the location and boundary of the survey area(s); b) a qualitative description of the plant communities (including dominant species and habitat quality) on and adjacent to the survey area; c) a complete description of survey methods including the names of personnel, the number of acres surveyed per biologist per survey-day, the number and dates of surveys, survey routes, the temperature and weather conditions at the beginning and end of each survey, and how frequently taped vocalizations were used, if at all; d) the number, age, and sex of all gnatcatchers and brown-headed cowbirds detected, and these data will also be plotted on 1:24,000 scale map(s) of the survey area; e) the assessor's parcel number for the site (if possible); f) GIS data or GPS coordinates (if possible); g) a conclusion section that

specifically provides recommendations for recovery of the species; h) other pertinent observations made during survey efforts; and i) the following certification statement signed by each surveyor(s) performing activities in independent status pursuant to this permit: "I certify that the information in this survey report and attached exhibits fully and accurately represents my work." The date of signature and the surveyor's permit number will be included. Information may be submitted electronically if pre-arranged with the Recovery Permit Coordinator of the appropriate FWO.

8. Minor deviation from the stipulated terms and conditions may be authorized on a case-by-case basis when approved by the appropriate FWO unless an amendment to this permit would be required.

9. This permit does not cover any activities authorized pursuant to a biological opinion or habitat conservation plan (HCP). All such activities must be authorized by the office that wrote the biological opinion, issued the section 10(a)(1)(B) incidental take permit based on an HCP, or is the lead field office implementing the HCP. Note also that this permit is not to be construed as meaning that the permittee or other authorized individuals are qualified to conduct activities pursuant to a biological opinion or HCP except insofar as the activities are similar to those authorized in this permit. Their qualifications for activities to be done pursuant to the biological opinion are subject to review and written approval for the specific activities by the office that wrote the biological opinion, issued the section 10(a)(1)(B) incidental take permit based on an HCP, or is the lead field office implementing the HCP.

10. This permit does not authorize take of federally listed species that are not specifically authorized pursuant to this permit. However, the Service acknowledges that incidental take of a co-occurring federally listed species could potentially occur while conducting certain permitted activities. When applicable, the following conditions apply to all federally listed animals that the permittee is not authorized to take pursuant to this permit, but which may be incidentally sighted, encountered, captured, injured, or killed:

    a. Each individual authorized pursuant to this permit will be knowledgeable about potentially co-occurring listed species that may occur throughout the habitats in which permitted activities are conducted and must be observant and cautious to the extent that "take" of a co-occurring listed species is minimized to the maximum extent practicable.

    b. Any federally listed animal that the permittee is not authorized to take pursuant to this permit, but is incidentally captured during the course of conducting authorized activities, will be released immediately at the point of capture.

    c. During the course of your permitted activities, if an incidental injury or mortality occurs to a federally listed species not authorized in this permit, the permittee will follow instructions specified in conditions 11 below.

    d. Any incidental capture, injury or mortality of a federally listed species not authorized in this permit will be recorded and reported in the annual report submitted pursuant to this permit.

e. We request that all incidental encounters and/or sightings of other federally listed species not authorized under this permit be recorded and reported in the annual report submitted pursuant to this permit and also reported to the California Natural Diversity Database (CNDDB) as specified in condition number 14.

11. The number of individuals allowed to be incidentally injured or killed annually while conducting activities pursuant to this permit is 0 (zero) gnatcatchers (including adults, chicks or eggs) in any calendar year. In the event that an individual is incidentally injured or killed during the performance, the permittee must:

a. Immediately cease the activity resulting in injury or death until reauthorized by the Regional Recovery Permit Coordinator, which may, after analysis of the circumstances of mortality or injury, revoke or amend this permit.

b. Immediately notify the Regional Recovery Permit Coordinator (telephone: 760-431-9440) and the Recovery Permit Coordinator of the appropriate FWO. The permittee must follow-up such verbal notification in writing to each office.

c. With the written notification, the permittee is to provide a report of the circumstances that led to the injury or mortality. A description of the changes in protocols that will be implemented to reduce the likelihood of such injury or mortality from happening again should be included, if appropriate. The incident will also be discussed in the annual report that is subsequently submitted. A copy of this report will also be sent to the California Department of Fish and Wildlife (CDFW), Attention: Permit Biologist, Wildlife Branch, 1812 Ninth Street, Sacramento, California 95811 (telephone: 916-445-3764).

d. Dead specimens and/or appropriate parts of dead specimens that are incidentally taken pursuant to this section will be preserved in accordance with standard museum practices. Within 120 days, the preserved specimen(s) will be properly labeled and deposited with one of the designated repositories specified below. The permittee will supply the repository with a copy of this permit to validate that the specimens supplied to the museum were taken pursuant to a permit.

12. The permittee is authorized to salvage all gnatcatcher carcasses to be provided to one of the designated repositories within 120 days by following condition number 11.d above. Any specimens salvaged will be documented and specified in the annual report submitted to the appropriate field office.

13. Designated repositories:

The Los Angeles County Museum of Natural History, Los Angeles, California; the San Bernardino County Museum, Redlands, California; or the San Diego Natural History Museum, San Diego, California.

14. California Natural Diversity Database forms will be completed, as appropriate, for each listed species addressed herein and submitted to the Biogeographic Data Branch, CDFW, 1807 13th Street, Suite 202, Sacramento, California 95811 (also accessible online at: http://www.dfg.ca.gov/biogeodata/cnddb) with copies submitted to the appropriate FWO. Copies of the form can be obtained from the CDFW at the above address (telephone: 916-324-3812).

15. All reports or other documents that include information gathered under the authority of this permit (e.g., reports prepared by consulting firms for their clients, thesis, or scientific journal articles) will reference this permit number. Copies of such documents will include a transmittal letter and be provided to the Recovery Permit Coordinator at the appropriate FWO upon their completion. Draft documents, raw/field data, and other information resulting from work conducted under the authority of this permit will be submitted to the Service upon request.

16. Annual Reporting:

In order to track, document, and assess all project-specific activities conducted pursuant to this permit, we are requiring an annual summary report be submitted to the Recovery Permit Coordinator at the appropriate FWO by January 31, following each year this permit is in effect, that summarizes all of the activities conducted during the previous calendar year. Activities that are continuous (i.e., overlapping in two or more calendar years), must be reported each year the activity is in effect. Each FWO specified in condition number 4 above will receive separate, independent summary reports specifying only those permitted activities conducted within their respective jurisdictions. These reports may be submitted electronically if pre-arranged with the Recovery Permit Coordinator. The annual summary report will include but not be limited to the following:

a. Permittee name and permit number with date of expiration.

b. A section listing all authorized activities conducted for each permitted species during the previous calendar year. This information can be in tabular format and should provide a summary of each activity for each species authorized in this permit. This section will include but not be limited to:

   i. The name and title of each permitted activity conducted during the previous calendar year (preferably the same title as the reports previously or concurrently being submitted to the Service as specified in condition 7 above).

   ii. The version of each activity report (draft or final) and the report date. If a draft report was submitted, indicate the reason (ongoing activities, processing or analysis of data, final report in review, final report in progress, etc.) and the anticipated final report finish date.

   iii. The specific location of the project site, including the County.

iv. The common and scientific names of the listed species for which the permitted activity was conducted.

v. Indicate whether or not the species was observed.

vi. Indicate whether or not GIS or GPS data was submitted.

vii. The date and name of the FWO where each individual report(s) have been or will be submitted.

c. The number of individuals incidentally injured and/or killed, including dates, locations, circumstances of take, and repository receiving the preserved specimen(s). If no injuries or mortalities occurred, please state this in writing in your annual summary report.

d. Other pertinent observations made regarding the status or ecology of the species.

e. Planned future activities, if authorized under this permit.

f. If no activities were conducted with any or all species authorized under this permit within any FWO jurisdiction, please state this in writing in the annual report to that FWO.

17. Failure to comply with reporting requirements may result in non-renewal or suspension/revocation of this permit.

8-5-15
Date

For Endangered Species Division Chief

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Southwest Region
2800 Cottage Way, Suite W-2606
Sacramento, California 95825-1846

LIST OF AUTHORIZED INDIVIDUALS
TE-59586B-0

1. Individual authorized to conduct activities pursuant to this permit:

   Scott Duff.

Other individuals may conduct activities pursuant to this permit only under the direct, on-site supervision of an independently authorized individual specified above. "On-site supervision" is defined as an unauthorized person conducting activities within 3 meters (9.8 feet) of an authorized individual.

8-5-15
Date

FOR Endangered Species Division Chief

This List is only valid if it is dated on or after the permit issuance date.

Appendix B

Regulatory Setting

Regulatory Setting

Special-status habitats are vegetation types, associations, or sub-associations that support concentrations of special-status plant or animal species, are of relatively limited distribution, or are of particular value to wildlife.

Listed species are those taxa that are formally listed as endangered or threatened by the federal government (e.g., USFWS), pursuant to the federal Environmental Species Act (ESA) or as endangered, threatened, or rare (for plants only) by the State of California (i.e., California Fish and Game Commission), pursuant to the California Endangered Species Act (CESA) or the California Native Plant Protection Act (NPPA). Some species are considered rare (but not formally listed) by resource agencies, organizations with biological interests/expertise (e.g., Audubon Society, CNPS, The Wildlife Society), and the scientific community.

The following is a brief summary of the regulatory context under which biological resources are managed at the federal, state, and local levels. A number of federal and state statutes provide a regulatory structure that guides the protection of biological resources. Agencies with the responsibility for protection of biological resources within the project site include:

- U.S. Army Corps of Engineers (wetlands and other waters of the U.S.)
- Los Angeles Regional Water Quality Control Board (waters of the state)
- U.S. Fish and Wildlife Service (federally listed species and migratory birds)
- California Department Fish and Wildlife (riparian areas, streambeds, and lakes; state-listed species; Species of Special Concern; nesting birds)
- County of Los Angeles, California

U.S. Army Corps of Engineers

Under Section 404 of the Clean Water Act, the U.S. Army Corps of Engineers (USACE) has authority to regulate activities that could discharge fill or material into wetlands or other “waters of the United States” through issuance of a Section 404 Permit. Perennial and intermittent creeks are considered waters of the United States if they are hydrologically connected to other jurisdictional waters (typically a navigable water). The USACE also implements the federal policy embodied in Executive Order 11990, which is intended to result in no net loss of wetland value or acres. In achieving the goals of the Clean Water Act, the USACE seeks to avoid adverse impacts and offset unavoidable adverse impacts on existing aquatic resources. Any fill of wetlands that are hydrologically connected to jurisdictional waters would require a permit from the USACE prior to the start of work. Typically, when a project involves impacts to waters of the United States, the goal of no net loss of wetland acres or values is met through avoidance and minimization to the extent practicable, followed by compensatory mitigation involving creation or enhancement of similar habitats.

Regional Water Quality Control Board

The State Water Resources Control Board (SWRCB) and the local Regional Water Quality Control Board (RWQCB) have jurisdiction over “waters of the State,” pursuant to the Porter-Cologne Water

Quality Control Act, which are defined as any surface water or groundwater, including saline waters, within the boundaries of the State. The SWRCB has issued general Waste Discharge Requirements (WDRs) regarding discharges to "isolated" waters of the State (Water Quality Order No. 2004-0004-DWQ, Statewide General Waste Discharge Requirements for Dredged or Fill Discharges to Waters Deemed by the U.S. Army Corps of Engineers to be Outside of Federal Jurisdiction). The RWQCB administers actions under this general order for isolated waters not subject to federal jurisdiction, and is also responsible for the issuance of water quality certifications pursuant to Section 401 of the Clean Water Act for waters subject to federal jurisdiction.

United States Fish and Wildlife Service

The United States Fish and Wildlife Service (USFWS) implements the Migratory Bird Treaty Act (16 United States Code [USC] Section 703-711) and the Bald and Golden Eagle Protection Act (16 USC Section 668). The USFWS and National Marine Fisheries Service (NMFS) share responsibility for implementing the ESA (16 USC § 153 et seq.). Generally, the USFWS implements the ESA for terrestrial and freshwater species, while the NMFS implements the ESA for marine and anadromous species. Projects that would result in "take" of any federally threatened or endangered species are required to obtain permits from the USFWS or NMFS through either Section 7 (interagency consultation with a federal nexus) or Section 10 (Habitat Conservation Plan) of the ESA, depending on the involvement by the federal government in permitting and/or funding of the project. The permitting process is used to determine if a project would jeopardize the continued existence of a listed species and what measures would be required to avoid jeopardizing the species. "Take" under federal definition means to harass, harm (which includes habitat modification), pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Proposed or candidate species do not have the full protection of the ESA; however, the USFWS and NMFS advise project applicants that they could be elevated to listed status at any time.

California Department of Fish and Wildlife

The California Department of Fish and Wildlife (CDFW) derives its authority from the Fish and Game Code of California. The California Endangered Species Act (CESA) (Fish and Game Code Section 2050 et. seq.) prohibits take of state listed threatened or endangered. Take under CESA is restricted to direct mortality of a listed species and the law does not prohibit indirect harm by way of habitat modification. Where incidental take would occur during construction or other lawful activities, CESA allows the CDFW to issue an Incidental Take Permit upon finding, among other requirements, that impacts to the species have been minimized and fully mitigated.

The CDFW also enforces Sections 3511, 4700, 5050, and 5515 of the Fish and Game Code, which prohibit take of species designated as Fully Protected. The CDFW is not allowed to issue an Incidental Take Permit for Fully Protected species; therefore, impacts to these species must be avoided.

California Fish and Game Code sections 3503, 3503.5, and 3513 describe unlawful take, possession, or destruction of native birds, nests, and eggs. Section 3503.5 of the Code protects all birds-of-prey and their eggs and nests against take, possession, or destruction of nests or eggs. Section 3513 makes it a state-level offense to take any bird in violation of the federal Migratory Bird Treaty Act. CDFW administers these requirements.

Species of Special Concern (SSC) is a category used by the CDFW for those species which are considered to be indicators of regional habitat changes or are considered to be potential future protected species. Species of Special Concern do not have any special legal status except that which may be afforded by the Fish and Game Code as noted above. The SSC category is intended by the CDFW for use as a management tool to include these species in special consideration when decisions are made concerning the development of natural lands. The CDFW also has authority to administer the Native Plant Protection Act (NPPA) (Fish and Game Code Section 1900 et seq.). The NPPA requires the CDFW to establish criteria for determining if a species, subspecies, or variety of native plant is endangered or rare. Effective in 2015, CDFW promulgated regulations (14 CCR 786.9) under the authority of the NPPA, establishing that the CESA's permitting procedures would be applied to plants listed under the NPPA as "Rare." With this change, there is little practical difference for the regulated public between plants listed under CESA and those listed under the NPPA except where the NPPA's exemption clauses apply.

Perennial, intermittent, and ephemeral streams and associated riparian vegetation, when present, also fall under the jurisdiction of the CDFW. Section 1600 *et seq*. of the Fish and Game Code (Lake and Streambed Alteration Agreements) gives the CDFW regulatory authority over activities that divert, obstruct, or alter the channel, bed, or bank of any river, stream or lake. Of particular interest to the CDFW are riparian trees greater than two inches in diameter at breast height (DBH).

Local Jurisdiction

The County of Los Angeles General Plan (2015a) contains several policies that pertain to biological resources that are relevant to the project and project site:

- Policy C/NR 3.1: Conserve and enhance the ecological function of diverse natural habitats and biological resources
- Policy C/NR 3.3: Restore upland communities and significant riparian resources, such as degraded streams, rivers, and wetlands to maintain ecological function – acknowledging the importance of incrementally restoring ecosystem values when complete restoration is not feasible
- Policy C/NR 3.4: Conserve and sustainably manage forests and woodlands
- Policy C/NR 3.10: Require environmentally superior mitigation for unavoidable impacts on biologically sensitive areas, and permanently preserve mitigation sites
- Policy C/NR 4.1: Preserve and restore oak woodlands and other native woodlands that are conserved in perpetuity with a goal of no net loss of existing woodlands

Per the County of Los Angeles Oak Tree Ordinance (Section 22.56.2050 *et seq.*; County of Los Angeles 1988), an oak tree permit must be obtained prior to damaging or removing any tree of the oak genus which are:

- Eight inches or more in diameter (25 inches in circumference), as measured four and one-half feet above mean natural grade
- Oaks with multiple trunks, where the combined diameter of any two trunks is twelve inches (28 inches in circumference) or more
- Heritage oak trees, where the largest trunk is at least 36 inches in diameter, and any oak tree having significant historical or cultural importance to the community, notwithstanding that the tree diameter is less than 36 inches
- Provided as a replacement tree (Section 22.56.2180)

In addition, the County of Los Angeles Oak Woodlands Conservation Management Plan (Woodland Plan) (County of Los Angeles 2011) and the accompanying Woodlands Conservation Management Plan Guide (Woodland Guide) (County of Los Angeles 2014) regulate impacts to oak woodlands. The objectives of the Woodland Plan are to prioritize the preservation of oak woodlands, promote conservation by integrating oak woodlands into the development process in a sustainable manner, and effectively mitigate the loss of oak woodlands. The Woodland Guide implements portions of the Woodland Plan and focuses on potential impacts to oak woodlands from proposed developments. The Woodland Guide defines oak woodlands as:

> An oak stand, including its understory, which consists of two or more oak trees (all native trees of the genus *Quercus*) of at least five inches in diameter (of the largest trunk) measured at 4.5 feet above mean natural grade, with greater than 10% canopy cover or that may have historically supported greater than 10% canopy cover as early as January 1, 2005 (effective date of California Public Resources Code Section 21083.4).

Appendix C

Site Photographs

Photograph 1. View west onto the project site from the entrance to Draper Road along Hacienda Boulevard

Photograph 2. West entrance to the Hacienda Boulevard underpass, adjacent to the project site

Photograph 3. Oak Woodland looking southwest from Draper Road

Photograph 4. Looking west at non-native grassland and Aleppo Pine (*Pinus halepensis*) along Draper Road, from a point just north of Draper Road on the project site

Photograph 5. Non-native grassland and California sagebrush (*Artemisia californica*) looking east on the project site

Photograph 6. View east on the project site, including non-native grassland, elderberry shrub (*Sambucus nigra* ssp. *caerulea*), and Aleppo pine along Draper Road

Photograph 7. View west toward a blue elderberry stand surrounded by non-native grassland on the project site and Aleppo pine along Draper Road

Photograph 8. View to the northwest from the project site: blue elderberry, coastal sage scrub, non-native grassland, *Eucalyptus* sp. in the mid-ground and a Hacienda Heights residential neighborhood

Photograph 9. View to the south of patch of prickly pear cactus (*Opuntia littoralis*) that is located directly on the project site's southwestern perimeter

Photograph 10. View to the east from the project site of non-native grassland, coastal sage scrub, and a residential neighborhood of Hacienda Heights to the north of the project site

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Appendix D

2018 California Gnatcatcher Survey Report

Appendix E

2019 Jurisdictional Delineation Report

Appendix F

2019 Oak Tree Report

Appendix G

Floral and Faunal Compendium

Plant Species Detected on the Project Site during 2018 Biological Surveys

Scientific Name	Common Name	Status	Native or Non-native	Est. Abundance On Site	Est. Abundance Vicinity
Trees					
Eucalyptus globulus	blue gum	Cal-IPC Limited	Non-native	s	s
Fraxinus uhdei	shamel ash	–	Non-native	s	s
Pinus halepensis	Aleppo pine	–	Non-native	o	o
Quercus agrifolia	coast live oak	Protected in LA County*	Native	c	c
Quercus suber	cork oak	Protected in LA County*	Non-native	s	s
Quercus tomentella	island oak	CRPR 4.2; Protected in LA County*	Native	s	s
Schinus molle	Peruvian pepper tree	Cal-IPC Limited	Non-native	s	o
Shrubs					
Artemisia californica	California sagebrush	–	Native	c	c
Baccharis pilularis	coyote brush	–	Native	u	c
Baccharis salicifolia	mule fat	–	Native	u	s
Diplacus longiflorus	southern bush monkeyflower	–	Native	u	f
Encelia californica	bush sunflower	--	Native	u	c
Ericameria palmeri	Palmer's goldenbush	--	Native	s	o
Eriogonum fasciculatum	California buckwheat	–	Native	c	c
Eriogonum cinereum	coastal buckwheat	–	Native	s	o
Heteromeles arbutifolia	toyon	–	Native	u	c
Lupinus longifolius	long leaf bush lupine	–	Native	s	f
Malosma laurina	laurel sumac	–	Native	f	c
Nicotiana glauca	tree tobacco	Cal-IPC Moderate	Non-native	u	c
Opuntia littoralis	prickly pear cactus	–	Native	s	o
Quercus berberidifolia	scrub oak	–	Native	o	f
Ricinus communis	castor bean	Cal-IPC Limited	Non-native	o	o
Salvia apiana	white sage	–	Native	o	f
Sambucus nigra ssp. *caerulea*	blue elderberry	–	Native	o	f
Toxicodendron diversilobum	poison oak	–	Native	f	f
Yucca sp.	yucca	–	Non-native	s	s

Scientific Name	Common Name	Status	Native or Non-native	Est. Abundance On Site	Est. Abundance Vicinity
Herbs					
Acmispon glaber	deerweed	–	Native	f	c
Acmispon strigosus	strigose lotus	–	Native	o	o
Amsinckia intermedia	common fiddleneck	–	Native	c	c
Asclepias californica	California milkweed	–	Native	o	o
Asclepias eriocarpa	Indian milkweed	–	Native	s	s
Asclepias fascicularis	narrow leaf milkweed	–	Native	s	s
Brassica nigra	black mustard	Cal-IPC Moderate	Non-native	c	c
Calystegia macrostegia	morning glory	–	Native	f	c
Carduus pycnocephalus	Italian thistle	Cal-IPC Moderate	Non-native	f	c
Centaurea melitensis	tocalote	Cal-IPC Moderate	Non-native	c	c
Chlorogalum pomeridianum	Amole	–	Native	s	s
Conium maculatum	poison hemlock	Cal-IPC Moderate	Non-native	s	c
Cynara cardunculus	artichoke thistle	Cal-IPC Moderate	Non-native	s	f
Datura wrightii	jimsonweed	–	Native	s	o
Deinandra fasciculata	clustered tarweed	–	Native	o	f
Epilobium canum	California fuchsia	–	Native	s	o
Erodium moschatum	whitestem filaree	–	Non-native	o	f
Euphorbia maculatum	spotted spurge	–	Non-native	o	f
Foeniculum vulgare	fennel	Cal-IPC High	Non-native	o	c
Gutierrezia californica	matchweed	–	Native	s	o
Helminthotheca echioides	bristly ox-tongue	Cal-IPC Limited	Non-native	c	c
Malva parviflora	cheeseweed	–	Non-native	c	c
Marah macrocarpa	wild cucumber	–	Native	o	f
Marrubium vulgare	white horehound	Cal-IPC Limited	Non-native	o	o
Mirabilis laevis	desert wishbone bush	–	Native	s	o
Pickeringia montana	chaparral pea	–	Native	s	o
Pseudognaphalium californicum	everlasting	-–	Native	o	f
Pseudognaphalium microcephalum	Wright’s cudweed	–	Native	s	o
Rafinesquia californica	California chicory	–	Native	o	f
Raphanus sativus	jointed charlock	Cal-IPC Limited	Non-native	c	c
Salsola tragus	Russian thistle	Cal-IPC Limited	Non-native	o	c
Silybum marianum	milk thistle	Cal-IPC Limited	Non-native	f	f
Sisymbrium officinale	hedge mustard	–	Non-native	s	o

Scientific Name	Common Name	Status	Native or Non-native	Est. Abundance On Site	Est. Abundance Vicinity
Sisyrichium bellum	blue eyed grass	–	Native	u	u
Solanum americanum	white nightshade	–	Native	s	f
Sonchus asper	sowthistle	–	Non-native	f	c
Sonchus oleraceus	sow thistle	–	Non-native	o	c
Verbascum virgatum	wand mullein	–	Non-native	s	o
Grasses					
Avena sp.	wild oat	Cal-IPC Moderate	Non-native	f	c
Bromus diandrus	ripgut brome	Cal-IPC Moderate	Non-native	c	c
Bromus madritensis ssp. *rubens*	foxtail brome	Cal-IPC High	Non-native	f	c
Hordeum murinum	foxtail barley	Cal-IPC Moderate	Non-native	o	f
Schismus sp.	schismus	Cal-IPC Limited	Non-native	c	c
Stipa [Nassella] pulchra	purple needle grass	–	Native	o	o

CRPR (CNPS California Rare Plant Rank)

1A = Presumed Extinct in California

1B = Rare, Threatened, or Endangered in California and elsewhere

2 = Rare, Threatened, or Endangered in California, but more common elsewhere

3 = Need more information (a Review List)

4 = Plants of Limited Distribution (a Watch List)

CRPR Threat Code Extension

.1 = Seriously endangered in California (>80% of occurrences threatened / high degree and immediacy of threat)

.2 = Fairly endangered in California (20-80% of occurrences threatened)

.3 = Not very endangered in California (<20% of occurrences threatened)

Estimated Abundance On-Site and in Vicinity

c = Common – Observed or expected throughout the area in high numbers; should be easily seen on most sites in appropriate habitat and season

f = Fairly common – Observed or expected to occur in moderate numbers over most of the area; should be located during active searches in appropriate habitat and season

u = Uncommon – Observed or expected in low numbers; may be seen on a few site visits

o = Occasional – Observed or expected only sporadically; only casually observed, even in suitable habitat and season; no more than a few individuals are present at any time

s = Scarce – Observed or expected rarely; may be observed if suitable habitat visited frequently during the appropriate season; usually individual observations, rarely more than one present at a given time

Sources: 2018 biological resources surveys; Calflora 2019; California Invasive Plant Council (Cal-IPC) 2018, which rates introduced species according to their level of invasiveness; CDFW 2018a; CNPS 2018a. Oak trees of a certain size are protected in Los Angeles County including as part of a woodland (County of Los Angeles 1988, County of Los Angeles 2011).

Animal Species Detected on the Project Site during 2018 Biological Surveys

Scientific Name	Common Name	Status	Native or Non-native	Est. Abundance On Site	Est. Abundance Vicinity
Reptiles					
Masticophis lateralis lateralis	California striped racer	–	Native	s	s
Sceloporus occidentalis	western fence lizard	–	Native	c	c
Uta stansburiana elegans	western side-blotched lizard	–	Native	c	c
Birds					
Accipiter cooperii	Cooper's hawk	WL	Native	s	o
Aeronautes saxatalis	white-throated swift	–	Native	s	o
Aphelocoma californica	California scrub-jay	–	Native	f	c
Bubo virginianus	great horned owl	–	Native	s	o
Buteo jamaicensis	red-tailed hawk	–	Native	s	f
Buteo lineatus	red-shouldered hawk	–	Native	s	s
Callipepla californica	California quail	–	Native	o	o
Campylorhynchus brunneicapillus	coastal cactus wren	SSC LA County Sensitive Bird Species Part II List	Native	s	o
Calypte anna	Anna's hummingbird	–	Native	f	c
Cathartes aura	Turkey vulture	LA County Sensitive Bird Species Part I List	Native	s	o
Chamaea fasciata	wrentit	–	Native	s	o
Columba livia	rock pigeon	–	Native	s	c
Contopus sordidulus	western wood-pewee	–	Native	s	s
Corvus brachyrhynchos	American crow	–	Native	s	c
Corvus corax	common raven	–	Native	f	f
Empidonax difficilis	Pacific-slope flycatcher	–	Native	s	o
Geothlypis trichas	common yellowthroat	–	Native	s	s
Haemorhous mexicanus	house finch	–	Native	f	c
Hirundo rustica	barn swallow	–	Native	s	o
Icterus bullockii	Bullock's oriole	–	Native	s	o
Icterus cucullatus	hooded oriole	–	Native	s	o
Melospiza melodia	song sparrow	-–	Native	o	o

Scientific Name	Common Name	Status	Native or Non-native	Est. Abundance On Site	Est. Abundance Vicinity
Melozone crissalis	California towhee	LA County Sensitive Bird Species Watch List	Native	c	c
Mimus polyglottos	northern mockingbird	–	Native	s	c
Molothrus ater	brown-headed cowbird	–	Native	s	o
Myiarchus cinerascens	ash-throated flycatcher	–	Native	s	o
Oreothlypis celata	orange-crowned warbler	–	Native	s	o
Passer domesticus	house sparrow	–	Native	s	c
Petrochelidon pyrrhonota	cliff swallow	–	Native	o	o
Phainopepla nitens	Phainopepla	–	Native	s	o
Pheucticus melanocephalus	black-headed grosbeak	–	Native	s	o
Picoides nuttalli	Nuttall's woodpecker	–	Native	o	o
Pipilo maculatus	spotted towhee	–	Native	o	f
Polioptila caerulea	blue-gray gnatcatcher	–	Native	s	o
Psaltriparus minimus	bushtit	–	Native	f	c
Sayornis nigricans	black phoebe	–	Native	o	c
Sayornis saya	Say's phoebe	–	Native	s	o
Selasphorus rufus	rufous hummingbird	–	Native	s	o
Selasphorus sasin	Allen's hummingbird	–	Native	f	f
Spinus psaltria	lesser goldfinch	–	Native	o	f
Stelgidopteryx serripennis	northern rough-winged swallow	–	Native	o	o
Sturnus vulgaris	European starling	–	Non-native	s	c
Thryomanes bewickii	Bewick's wren	–	Native	o	o
Toxostoma redivivum	California thrasher	–	Native	s	s
Troglodytes aedon	house wren	–	Native	s	f
Tyrannus verticalis	western kingbird	–	Native	s	o
Vireo huttoni	Hutton's vireo	LA County Sensitive Bird Species Watch List	Native	s	o
Zenaida macroura	mourning dove	–	Native	f	c

Scientific Name	Common Name	Status	Native or Non-native	Est. Abundance On Site	Est. Abundance Vicinity
Mammals					
Canis latrans	coyote	–	Native	o	o
Odocoileus hemionus	mule deer	–	Native	o	o
Otospermophilus beecheyi	California ground squirrel	–	Native	s	c
Procyon lotor	raccoon	–	Native	o	f
Thomomys bottae	Botta's pocket gopher	–	Native	o	c

Status: Federal/State
FE = Federally Endangered
FT = Federally Threatened
FC = Federal Candidate
FS = Federally Sensitive
PFT = Proposed Federal Threatened
FDL = Federal Delisted
SE = State Endangered
ST = State Threatened
SC = State Candidate
SR = State Rare
SDL = State Delisted
SSC = CDFW Species of Special Concern
FP = CDFW Fully Protected
WL = CDFW Watch List

Estimated Abundance On-Site and in Vicinity

c = Common – Observed or expected throughout the area in high numbers; should be easily seen on most sites in appropriate habitat and season

f = Fairly common – Observed or expected to occur in moderate numbers over most of the area; should be located during active searches in appropriate habitat and season

u = Uncommon – Observed or expected in low numbers; may be seen on a few site visits

o = Occasional – Observed or expected only sporadically; only casually observed, even in suitable habitat and season; no more than a few individuals are present at any time

s = Scarce – Observed or expected rarely; maybe observed if suitable habitat visited frequently during the appropriate season; usually individual observations, rarely more than one present at a given time~~.~~

Sources: 2018 biological resources surveys; CDFW 2018a; CDFW 2018d; CDFW 2018e; Los Angeles County Sensitive Bird Species Working Group 2019; Herpetological Education and Research Project (HERP) 2019; e-Bird 2019.

Appendix H

Special-Status Species Potential to Occur Table

Special-Status Plant and Animal Species in the Regional Vicinity of the Project Site

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Plants				
Abronia villosa var. *aurita* chaparral sand-verbena	None/None G5T2T3/S2 1B.1	Chaparral, coastal scrub, desert dunes. Sandy areas. -60-1570 m.	Not Expected	Suitable sandy soils are not present on the project site.
Androsace elongata ssp. *acuta* California androsace	None/None G5?T3T4/S3S4 4.2	Chaparral, cismontane woodland, coastal sage scrub, valley and foothill grassland, meadows and seeps, pinyon and juniper woodland. Highly localized and often overlooked little plant. 150-1200 m.	Not Expected	Suitable coastal scrub is present on the project site; however, the four local records for this species are greater than 80 years old and none are within 5 miles of the project site. Most records of this species in Los Angeles County are located on the northern slopes of the San Gabriel Mountains and there are none in Orange County.
Asplenium vespertinum western spleenwort	None/None G4/S4 4.2	Chaparral, cismontane woodland, coastal scrub. Rocky sites. 180-1000 m.	Not Expected	Suitable coastal scrub is present on the project site; however, the one local record for this species is greater than 80 years old and is not within 5 miles of the project site. All but one record of this species in Los Angeles County are located in the San Gabriel Mountains.
Atriplex parishii Parish's brittlescale	None/None G1G2/S1 1B.1	Vernal pools, chenopod scrub, playas. Usually on drying alkali flats with fine soils. 5-1420 m.	Not Expected	Suitable alkali flats are not present on the project site.
Atriplex serenana var. *davidsonii* Davidson's saltscale	None/None G5T1/S1 1B.2	Coastal bluff scrub, coastal scrub. Alkaline soil. 0-460 m.	Not Expected	Suitable coastal scrub is present on the project site; however, no alkaline soils are present on site. This species has not been documented within 5 miles of the project site.
Berberis nevinii Nevin's barberry	Endangered/ Endangered G1/S1 1B.1	Chaparral, cismontane woodland, coastal scrub, riparian scrub. On steep, N-facing slopes or in low grade sandy washes. 290-1575 m.	Not Expected	Suitable coastal scrub is present on the project site; however, no sandy washes are present on site. This species has not been documented within 5 miles of the project site. This conspicuous perennial species was not observed during field surveys of the project site in 2018.
California macrophylla round-leaved filaree	None/None G3?/S3? 1B.2	Cismontane woodland, valley and foothill grassland. Clay soils. 15-1200 m.	Low	Suitable grasslands and clay soils are present on the project site; however, this species has not been documented within 5 miles of the project site and the local records of the species are all greater than 60 years old.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Calochortus catalinae Catalina mariposa lily	None/None G4/S4 4.2	Valley and foothill grassland, chaparral, coastal scrub, cismontane woodland. In heavy soils, open slopes, openings in brush. 15-700 m.	High	Suitable habitat is present on the project site, including coastal scrub and purple needlegrass grassland. This species has a record two miles to the east of the project site.
Calochortus plummerae Plummer's mariposa lily	None/None G4/S4 4.2	Coastal scrub, chaparral, valley and foothill grassland, cismontane woodland, lower montane coniferous forest. Occurs on rocky and sandy sites, usually of granitic or alluvial material. Can be very common after fire. 60-2500 m.	Moderate	Suitable habitat is present on the project site, including coastal scrub and purple needlegrass grassland; however, rocky and sandy sites are sparse. This species has a record less than one mile from the project site.
Calochortus weedii var. *intermedius* intermediate mariposa lily	None/None G3G4T2/S2 1B.2	Coastal scrub, chaparral, valley and foothill grassland. Dry, rocky open slopes and rock outcrops. 60-1575 m.	Moderate	Suitable habitat is present on the project site, including coastal scrub and purple needlegrass grassland; however, dry, rocky open slopes and rock outcrops are sparse. This species has multiple records less than one mile to the east of the project site.
Calystegia felix lucky morning-glory	None/None GHQ/SH 3.1	Meadows and seeps, riparian scrub. Sometimes alkaline, alluvial. 30-215 m.	Not Expected	No suitable meadows or seeps are present on the site.
Camissoniopsis lewisii Lewis' evening-primrose	None/None G4/S4 3	Valley and foothill grassland, coastal bluff scrub, cismontane woodland, coastal dunes, coastal scrub. Sandy or clay soil. 0-300 m.	Low	Suitable coastal scrub is present on the project site; however, all of the local records are greater than 90 years old and the species has not been documented within 5 miles of the project site.
Centromadia parryi ssp. *australis* southern tarplant	None/None G3T2/S2 1B.1	Marshes and swamps (margins), valley and foothill grassland, vernal pools. Often in disturbed sites near the coast at marsh edges; also in alkaline soils sometimes with saltgrass. Sometimes on vernal pool margins. 0-975 m.	Not Expected	No suitable marsh, swamp, or vernal pool habitat is present on site.
Chloropyron maritimum ssp. *maritimum* salt marsh bird's-beak	Endangered/ Endangered G4?T1/S1 1B.2	Marshes and swamps, coastal dunes. Limited to the higher zones of salt marsh habitat. 0-10 m.	Not Expected	No suitable marsh, swamp, or coastal dune habitat is present on site.
Chorizanthe parryi var. *fernandina* San Fernando Valley spineflower	Proposed Threatened/ Endangered G2T1/S1 1B.1	Coastal scrub, valley and foothill grassland. Sandy soils. 15-1015 m.	Not Expected	This species is restricted to a few well-documented populations near Santa Clarita, CA, with the remaining historic records extirpated.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Convolvulus simulans small-flowered morning-glory	None/None G4/S4 4.2	Chaparral, coastal scrub, valley and foothill grassland. Wet clay, serpentine ridges. 30-700 m.	Low	Suitable coastal scrub is present on the project site; however, no wet clay or serpentine soils are present on site. This species has not been documented within 5 miles of the project site.
Cuscuta obtusiflora var. *glandulosa* Peruvian dodder	None/None G5T4T5/SH 2B.2	Marshes and swamps (freshwater). Freshwater marsh. 15-280 m.	Not Expected	No marshes or swamps are present on the project site.
Deinandra paniculata paniculate tarplant	None/None G4/S4 4.2	Coastal scrub, valley and foothill grassland, vernal pools. Usually in vernally mesic sites. Sometimes in vernal pools or on mima mounds near them. 25-940 m.	Low	Suitable coastal scrub is present on the project site; however, no mesic soils are present on site. This species has not been documented within 5 miles of the project site. *Deinandra fasciculata* was identified as occurring on the project site.
Dudleya multicaulis many-stemmed dudleya	None/None G2/S2 1B.2	Chaparral, coastal scrub, valley and foothill grassland. In heavy, often clayey soils or grassy slopes. 15-790 m.	Low	Grassland is present on the project site and the species was documented in the general area of Whittier Hills between 1986 and 1992; however, no *Dudleya* were identified during the surveys of the project site.
Eriastrum densifolium ssp. *sanctorum* Santa Ana River woollystar	Endangered/ Endangered G4T1/S1 1B.1	Coastal scrub, chaparral. In sandy soils on river floodplains or terraced fluvial deposits. 180-700 m.	Not Expected	No river floodplain or terraced fluvial deposits are present on site.
Horkelia cuneata var. *puberula* mesa horkelia	None/None G4T1/S1 1B.1	Chaparral, cismontane woodland, coastal scrub. Sandy or gravelly sites. 15-1645 m.	Low	Suitable coastal scrub is present on the project site; however, no sandy soils are present on site. This species has not been documented within 5 miles of the project site.
Juglans californica southern California black walnut	None/None G3/S3 4.2	Chaparral, coastal scrub, cismontane woodland. Slopes, canyons, alluvial habitats. 50-900 m.	Not Expected	This species was not observed on site during the recent 2018 biological surveys.
Lasthenia glabrata ssp. *coulteri* Coulter's goldfields	None/None G4T2/S2 1B.1	Coastal salt marshes, playas, vernal pools. Usually found on alkaline soils in playas, sinks, and grasslands. 1-1375 m.	Not Expected	No suitable salt marsh, playa, or venal pool habitat on site.
Lepidium virginicum var. *robinsonii* Robinson's peppergrass	None/None G5T3/S3 4.3	Chaparral, coastal scrub. Dry soils, shrubland. 4-1435 m.	Moderate	Suitable coastal scrub is present on the project site. This species was observed in 2000 in Turnbull Canyon, approximately 2.5 miles west of the project site (LSA Associates 2007). No CNDDB or CNPS records of this species are located within 5 miles of the project site.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Nasturtium gambelii Gambel's water cress	Endangered/ Threatened G1/S1 1B.1	Marshes and swamps. Freshwater and brackish marshes at the margins of lakes and along streams, in or just above the water level. 5-330 m.	Not Expected	No marshes or swamps are present on the project site.
Navarretia prostrata prostrate vernal pool navarretia	None/None G2/S2 1B.1	Coastal scrub, valley and foothill grassland, vernal pools, meadows and seeps. Alkaline soils in grassland, or in vernal pools. Mesic, alkaline sites. 3-1235 m.	Not Expected	Suitable coastal scrub and grassland are present on site; however, no suitable alkaline soils or vernal pools are present. This species has not been documented within 5 miles of the project site.
Nemacaulis denudata var. *denudata* coast woolly-heads	None/None G3G4T2/S2 1B.2	Coastal dunes. 0-100 m.	Not Expected	The project site does not contain any coastal dunes.
Orcuttia californica California Orcutt grass	Endangered/ Endangered G1/S1 1B.1	Vernal pools. 10-660 m.	Not Expected	No vernal pools are present on site.
Phacelia hubbyi Hubby's phacelia	None/None G4/S4 4.2	Chaparral, coastal scrub, valley and foothill grassland. Gravelly, rocky areas and talus slopes. 0-1000 m.	Not Expected	Potentially suitable coastal scrub habitat is present; however no suitable rocky areas occur on the project site. This species has not been documented within 5 miles of the project site.
Phacelia ramosissima var. *austrolitoralis* south coast branching phacelia	None/None G5?T3/S3 3.2	Chaparral, coastal scrub, coastal dunes, coastal salt marsh. Sandy, sometimes rocky sites. 5-300 m.	Not Expected	Potentially suitable coastal scrub is present on the project site; however, no suitable sandy or rocky habitats occur on the project site. This species has not been documented within 5 miles of the project site.
Phacelia stellaris Brand's star phacelia	None/None G1/S1 1B.1	Coastal scrub, coastal dunes. Open areas. 3-370 m.	Not Expected	Marginally suitable coastal scrub habitat is present; however, this species has not been documented in Los Angeles or Orange counties since 1943 and it has not been documented within 5 miles of the project site.
Pseudognaphalium leucocephalum white rabbit-tobacco	None/None G4/S2 2B.2	Riparian woodland, cismontane woodland, coastal scrub, chaparral. Sandy, gravelly sites. 35-515 m.	Low	Marginally suitable coastal scrub habitat is present. This species has not been documented within 5 miles of the project site.
Quercus engelmannii Engelmann oak	None/None G3/S3 4.2	Cismontane woodland, chaparral, riparian woodland, valley and foothill grassland. 50-1300 m.	Absent	This species was not observed on site during the recent 2018 biological surveys.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Quercus tomentella Island oak	None/None G3G4/S3S4 4.2	Woodland and pine forests on north-facing slopes. 15-730 m.	Present	Oak Tree #114 as documented in the Oak Tree Report (Rincon Consultants 2019a) is located on the eastern end of the onsite oak woodland, south of Draper Road. Likely a planted individual as this species is native to the Channel Islands off the California coast and Isla Guadalupe off the Baja California coast in Mexico.
Ribes divaricatum var. *parishii* Parish's gooseberry	None/None G4TX/SX 1A	Riparian woodland. *Salix* swales in riparian habitats. 65-300 m.	Not Expected	No suitable riparian habitat is present on the site.
Romneya coulteri Coulter's matilija poppy	None/None G4/S4 4.2	Coastal scrub, chaparral. In washes and on slopes; also after burns. 20-1200 m.	Not Expected	Potentially suitable coastal scrub habitat is present; however no suitable washes occur on the project site, the species has not been documented within 5 miles of the project site, and surveys were conducted during the blooming season and the conspicuous, large flowers were not observed.
Scutellaria bolanderi ssp. *austromontana* southern mountains skullcap	None/None G4T3/S3 1B.2	Chaparral, cismontane woodland, lower montane coniferous forest. In gravelly soils on streambanks or in mesic sites in oak or pine woodland. 425-2000 m.	Not Expected	No suitable chaparral or montane woodland is present on the project site.
Senecio aphanactis chaparral ragwort	None/None G3/S2 2B.2	Chaparral, cismontane woodland, coastal scrub. Drying alkaline flats. 20-855 m.	Not Expected	Marginally suitable coastal scrub is present on the site; however, no alkaline soils are present. This species has not been documented within 5 miles of the project site.
Sidalcea neomexicana salt spring checkerbloom	None/None G4/S2 2B.2	Playas, chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub. Alkali springs and marshes. 3-2380 m.	Not Expected	Marginally suitable coastal scrub is present on the site; however, no alkaline soils are present. This species has not been documented within 5 miles of the project site.
Suaeda esteroa estuary seablite	None/None G3/S2 1B.2	Marshes and swamps. Coastal salt marshes in clay, silt, and sand substrates. 0-80 m.	Not Expected	No suitable marsh or swamp habitat is present on site.
Symphyotrichum defoliatum San Bernardino aster	None/None G2/S2 1B.2	Meadows and seeps, cismontane woodland, coastal scrub, lower montane coniferous forest, marshes and swamps, valley and foothill grassland. Vernally mesic grassland or near ditches, streams and springs; disturbed areas. 2-2040 m.	Not Expected	Marginally suitable coastal scrub and grassland are present on the site; however, no mesic soils or streams are present. This species has not been documented within 5 miles of the project site.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Insects				
Bombus crotchii Crotch bumble bee	None/None G3G4/S1S2	Coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include *Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia*, and *Eriogonum*.	Low	Suitable food plants, including *Eriogonum* sp., are found on the project site. Historic observations of this species have been recorded within 5 miles of this project site.
Cicindela gabbii western tidal-flat tiger beetle	None/None G2G4/S1	Inhabits estuaries and mudflats along the coast of Southern California. Generally found on dark-colored mud in the lower zone; occasionally found on dry saline flats of estuaries.	Not Expected	No suitable estuaries or mudflats are present on site.
Cicindela hirticollis gravida sandy beach tiger beetle	None/None G5T2/S2	Inhabits areas adjacent to non-brackish water along the coast of California from San Francisco Bay to northern Mexico. Clean, dry, light-colored sand in the upper zone. Subterranean larvae prefer moist sand not affected by wave action.	Not Expected	No suitable aquatic habitats are present on site.
Cicindela latesignata latesignata western beach tiger beetle	None/None G2G4T1T2/S1	Mudflats and beaches in coastal Southern California.	Not Expected	No suitable mudflats or beaches are present on site.
Cicindela senilis frosti senile tiger beetle	None/None G2G3T1T3/S1	Inhabits marine shoreline, from Central California coast south to salt marshes of San Diego. Also found at Lake Elsinore Inhabits dark-colored mud in the lower zone and dried salt pans in the upper zone.	Not Expected	No suitable aquatic habitat on site.
Danaus plexippus pop. 1 monarch - California overwintering population	None/None G4T2T3/S2S3	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby.	Low	Suitable tree groves are present on site; however, the site is not located near any water sources. This species has not been documented within 5 miles of the project site.
Fish				
Catostomus santaanae Santa Ana sucker	Threatened/ None G1/S1	Endemic to Los Angeles Basin south coastal streams. Habitat generalists, but prefer sand-rubble-boulder bottoms, cool, clear water, and algae.	Absent	No perennial watercourses are present on site that would be able to support this species.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Gila orcuttii arroyo chub	None/None G2/S2 SSC	Native to streams from Malibu Creek to San Luis Rey River basin. Introduced into streams in Santa Clara, Ventura, Santa Ynez, Mojave & San Diego river basins. Slow water stream sections with mud or sand bottoms. Feeds heavily on aquatic vegetation and associated invertebrates.	Absent	No perennial watercourses are present on site that would be able to support this species.
Amphibians				
Spea hammondii western spadefoot	None/None G3/S3 SSC	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	Not Expected	Suitable breeding habitat is not found on or adjacent to the project site.
Reptiles				
Arizona elegans occidentalis California glossy snake	None/None G5T2/S2 SSC	Patchily distributed from the eastern portion of San Francisco Bay, southern San Joaquin Valley, and the Coast, Transverse, and Peninsular ranges, south to Baja California. Generalist reported from a range of scrub and grassland habitats, often with loose or sandy soils.	Low	Suitable grassland habitats are present on the project site; however, the species has not been documented within 5 miles of the project site.
Aspidoscelis hyperythra orange-throated whiptail	None/None G5/S2S3 WL	Inhabits low-elevation coastal scrub, chaparral, and valley-foothill hardwood habitats. Prefers washes and other sandy areas with patches of brush and rocks. Perennial plants necessary for its major food: termites.	Not Expected	The project site is outside the range of the species.
Aspidoscelis tigris stejnegeri coastal whiptail	None/None G5T5/S3 SSC	Found in deserts and semi-arid areas with sparse vegetation and open areas. Also found in woodland & riparian areas. Ground may be firm soil, sandy, or rocky.	High	Suitable open areas and woodlands are present on the project site.
Chelonia mydas green sea turtle	Threatened/ None G3/S1	Marine. Completely herbivorous; needs adequate supply of seagrasses and algae.	Absent	No suitable marine aquatic habitat is present on site.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Crotalus ruber red-diamond rattlesnake	None/None G4/S3 SSC	Chaparral, woodland, grassland, & desert areas from coastal San Diego County to the eastern slopes of the mountains. Occurs in rocky areas and dense vegetation. Needs rodent burrows, cracks in rocks or surface cover objects.	Not Expected	The project site is outside the range of the species.
Emys marmorata western pond turtle	None/None G3G4/S3 SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	Not Expected	No suitable aquatic habitat is present on site.
Phrynosoma blainvillii coast horned lizard	None/None G3G4/S3S4 SSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	Low	Suitable open areas and bushes for cover are present on the project site; however, soils on site are not suitable.
Salvadora hexalepis virgultea coast patch-nosed snake	None/None G5T4/S2S3 SSC	Brushy or shrubby vegetation in coastal Southern California. Require small mammal burrows for refuge and overwintering sites.	Moderate	Suitable shrub habitat is present on the project site. This species has not been documented within 5 miles of the project site.
Birds				
Accipiter cooperii Cooper's hawk	None/None G5/S4 WL	Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	Present	This species was observed on the project site and suitable nesting habitat is found in the riparian oak woodland.
Agelaius tricolor tricolored blackbird	None/ Candidate Endangered G2G3/S1S2 SSC	Highly colonial species, most numerous in Central Valley & vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few km of the colony.	Not Expected	No suitable open water habitat is present on site.
Aimophila ruficeps canescens southern California rufous-crowned sparrow	None/None G5T3/S3 WL	Resident in Southern California coastal sage scrub and sparse mixed chaparral. Frequents relatively steep, often rocky hillsides with grass and forb patches.	Low	Potentially suitable coastal sage scrub is present on the project site; however, the project is not located on rocky hillsides. This species has not been documented within 5 miles of the project site.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Ammodramus savannarum grasshopper sparrow	None/None G5/S3 SSC	Dense grasslands on rolling hills, lowland plains, in valleys and on hillsides on lower mountain slopes. Favors native grasslands with a mix of grasses, forbs and scattered shrubs. Loosely colonial when nesting.	Low	Non-native annual grassland and a small section of purple needle grass grassland are present on the site. This species has not been documented within 5 miles of the project site.
Anser albifrons greater white-fronted goose	None/None G5 LA County Sensitive Bird Species (Part I List)	In the wintertime, west coast populations frequent open water or unvegetated shorelines for roosting and nearby post-harvest grain fields for foraging.	Not Expected	Suitable open water habitats are not present on the project site.
Ardea herodias great blue heron	None/None G5/S4	Colonial nester in tall trees, cliffsides, and sequestered spots on marshes. Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.	Not Expected	No suitable marsh habitat is present on site.
Asio flammeus short-eared owl	None/None G5/S3 SSC LA County Sensitive Bird Species (Part I List)	Wintering birds favor expanses of open country: freshwater and saltwater marshes, wet meadows, weedy fields, and agricultural stubble.	Not Expected	No suitable marshes, meadows, or agricultural habitats are present on site.
Asio otus long-eared owl	None/None G5/S3? SSC LA County Sensitive Bird Species (Part I List)	Riparian bottomlands grown to tall willows and cottonwoods; also, belts of live oak paralleling stream courses. Require adjacent open land, productive of mice and the presence of old nests of crows, hawks, or magpies for breeding.	Not Expected	Suitable riparian habitat is not present on the project site.
Athene cunicularia burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Not Expected	Only marginal habitat is present on the project site and no suitable burrows were observed during recent 2018 biological surveys.
Botaurus lentiginosus American bittern	None/None G4/S3S4 LA County Sensitive Bird Species (Part I List)	Nesting birds seem to require extensive freshwater wetlands with tall emergent vegetation standing in shallow water; wintering birds can make use of a wider variety of wetlands, including saltwater marshes.	Not Expected	Suitable wetland habitats are not present on site.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Buteo regalis ferruginous hawk	None/None G4/S3S4 WL LA County Sensitive Bird Species (Part I List)	Open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon and juniper habitats. Eats mostly lagomorphs, ground squirrels, and mice. Population trends may follow lagomorph population cycles.	Not Expected	This species would only occur on the project site as a transient during migration.
Buteo swainsoni Swainson's hawk	None/ Threatened G5/S3	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, & agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	Not Expected	This species would only occur on the project site as a transient during migration.
Campylorhynchus brunneicapillus sandiegensis coastal cactus wren	None/None G5T3Q/S3 SSC	Southern California coastal sage scrub. Wrens require tall *Opuntia* cactus for nesting and roosting.	Present	This species was observed during recent 2018 biological surveys in a patch of cactus (*Opuntia littoralis*) along the southwestern border of the project site.
Cathartes aura turkey vulture (breeding)	None/None G5 LA County Sensitive Bird Species (Part I List)	As a carrion eater, the Turkey Vulture needs a large area for foraging, but the foraging areas do not necessarily need to be suitable for nesting. For western populations, nesting birds require remote, rocky locations with caves, cliff ledges, and piles of large boulders.	Low	Suitable rocky locations for nesting are not present on the project site. Foraging in open areas of the project site could potentially occur.
Cathartes ustulatus Swainson's thrush (breeding)	None/None G5 LA County Sensitive Bird Species (Part I List)	Occupies riparian woodlands, and LA County birds were historically concentrated in willow-alder riparian thickets in the lowlands	Not Expected	Suitable riparian habitat is not present on the project site.
Chen caerulescens snow goose	None/None G5 LA County Sensitive Bird Species (Part I List)	Wintering birds on the Pacific coast generally commute between evening roosts in tidal marshes or river deltas and diurnal feeding areas on agricultural stubble and pasture.	Not Expected	Suitable marshes, rivers, or pasture are not present on the project site.
Chordeiles acutipennis lesser nighthawk (coastal slope)	None/None G5 LA County Sensitive Bird Species (Part I List)	Characteristic nesting species of one of Riversidean alluvial fan scrub, characterized by sparse coastal sage scrub amid boulder-strewn riverbeds at the base of mountains.	Not Expected	No Riversidean alluvial fan scrub is present on the project site.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Cistothorus palustris marsh wren (interior breeding)	None/None G5 LA County Sensitive Bird Species (Part I List)	This species occurs in natural freshwater wetlands which are essentially extinct, and have been replaced by reedbeds within storm-control drains, golf course ponds, and other man-made features supported by treated wastewater and urban run-off.	Not Expected	Suitable freshwater wetlands or man-made substitutes are not present on the project site.
Coccyzus americanus occidentalis western yellow-billed cuckoo	Threatened/ Endangered G5T2T3/S1	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	Not Expected	No suitable riparian habitat is present on site. This species was not detected during recent 2018 biological surveys.
Elanus leucurus white-tailed kite	None/None G5/S3S4 FP	Rolling foothills and valley margins with scattered oaks & river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Not Expected	No suitable nesting habitat present on site or in the vicinity of the project site.
Empidonax traillii extimus southwestern willow flycatcher	Endangered/ Endangered G5T2/S1	Riparian woodlands in Southern California.	Not Expected	No suitable riparian habitat is present on site. This species was not detected during recent 2018 biological surveys.
Empidonax wrightii gray flycatcher (breeding)	None/None G5 LA County Sensitive Bird Species (Part I List)	The species relies on arid, brushy habitat away from urbanized areas for breeding.	Not Expected	No suitable nesting habitat is present on site and the species has not been documented within 5 miles of the project site.
Eremophila alpestris actia California horned lark	None/None G5T4Q/S4 WL LA County Sensitive Bird Species (Part I List)	Coastal regions, chiefly from Sonoma County to San Diego County. Also main part of San Joaquin Valley and east to foothills. Short-grass prairie, "bald" hills, mountain meadows, open coastal plains, fallow grain fields, alkali flats.	Low	Grasslands are present on site; however, they are likely too tall to provide habitat for this species. This species has not been documented within 5 miles of the project site.
Falco columbarius merlin	None/None G5/S3S4 WL	Seacoast, tidal estuaries, open woodlands, savannahs, edges of grasslands & deserts, farms & ranches. Clumps of trees or windbreaks are required for roosting in open country.	Moderate	Suitable oak woodland and grassland is present on site. This species has not been documented within 5 miles of the project site.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Falco mexicanus prairie falcon (breeding)	None/None G5/S4 WL LA County Sensitive Bird Species (Part I List)	This falcon forages widely over desert scrub and arid grasslands, but its nesting is generally confined to sheltered cliff ledges, potholes, and caves in rugged terrain.	Not Expected	Suitable cliffs and caves are not present on the project site.
Falco peregrinus anatum American peregrine falcon	Delisted/ Delisted G4T4/S3S4 FP	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.	Not Expected	Project site is not located near any aquatic habitats and no suitable nesting sites are located nearby.
Geococcyx californianus greater roadrunner	None/None G5 LA County Sensitive Bird Species (Part I List)	A year-round resident of steep foothill canyons, desert woodland, and coastal sage scrub.	Low	Suitable coastal sage scrub habitat is present on the project site; however, the species has not been documented within 5 miles of the project site.
Hydroprogne caspia Caspian tern (breeding)	None/None G5/S4 LA County Sensitive Bird Species (Part I List)	While considered a widespread species, the Caspian Tern nests here only within the highly disturbed estuary at the Port of Los Angeles/Port of Long Beach.	Not Expected	No suitable estuaries are present on site.
Icterus parisorum Scott's oriole	None/None G5 LA County Sensitive Bird Species (Part I List)	Favors arid slopes and highlands supporting larger plants such as Joshua trees, mesquite-acacia associations, pinyon-juniper woodland, and dry oak woodland.	Not Expected	The project site is outside of the range of the species.
*Icteria virens*yellow-breasted chat	None/None G5/S3 SSC	Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 ft of ground.	Not Expected	No suitable riparian habitat is present on site.
Lanius ludovicianus loggerhead shrike (coastal slope wintering)	None/None G5/S4 SSC LA County Sensitive Bird Species (Part I List)	Occurs in scrubland, grassland, and agricultural areas.	Low	This species would only occur on the project site during foraging activities, but is not expected to nest on site.
Laterallus jamaicensis coturniculus California black rail	None/ Threatened G3G4T1/S1 FP	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	Not Expected	No suitable freshwater marshes, wet meadows, or saltwater marches are present on site.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Megaceryle alcyon belted kingfisher (breeding)	None/None G5 LA County Sensitive Bird Species (Part I List)	Requires earthen riverbanks in which to excavate nest burrows and appear to prefer nest sites that are within close proximity to foraging sites.	Not Expected	Suitable riverbanks for nesting are not present on site.
Melospiza lincolnii Lincoln's sparrow (breeding)	None/None G5 LA County Sensitive Bird Species (Part I List)	Nests in damp mountain meadows that support tall grasses, sedge, and corn lilies interspersed with low-growing shrubs such as willow.	Not Expected	Suitable mountain meadows for breeding are not present on site.
Numenius americanus long-billed curlew (wintering)	None/None G5/S2 LA County Sensitive Bird Species (Part I List)	This large shorebird formerly winters in flocks in wetlands and agricultural habitats on the coastal plain.	Not Expected	No suitable wetlands or agricultural habitats are present on site.
Passerculus sandwichensis beldingi Belding's savannah sparrow	None/ Endangered G5T3/S3	Inhabits coastal salt marshes, from Santa Barbara south through San Diego County. Nests in Salicornia on and about margins of tidal flats.	Not Expected	No suitable marshes are present on site.
Plegadis chihi white-faced ibis (breeding)	None/None G5/S3S4 WL LA County Sensitive Bird Species (Part I List)	Breeding populations of White-faced Ibis have two requirements: fresh- or saltwater wetlands containing dense stands of emergent vegetation for nest placement and nearby fields, pastures, or shallow wetlands with short vegetation for foraging.	Not Expected	No suitable wetlands are present on site.
Picoides villosus hairy woodpecker (lowland)	None/None G5 LA County Sensitive Bird Species (Part I List)	Widespread resident in coniferous and mixed oak-conifer forest of the San Gabriel Mountains. Also occurring at lower elevations along deep, shady canyons with willow thickets.	Not Expected	No suitable willow thickets are present on site.
Podiceps nigricollis eared grebe (breeding)	None/None G5 LA County Sensitive Bird Species (Part I List)	This waterbird can use a variety of freshwater habitats for nesting (lakes, reservoirs, sewage lagoons, sloughs, etc.), including highly alkaline ones, so long as emergent vegetation and "... highly productive macroinvertebrate communities" are present (Cullen et al. 1999 as cited in Los Angeles County Sensitive Bird Species Working Group 2009).	Not Expected	No suitable freshwater habitats are present on site.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Polioptila californica californica coastal California gnatcatcher	Threatened/ None G4G5T2Q/S2 SSC	Obligate, permanent resident of coastal sage scrub below 2500 ft in Southern California. Low, coastal sage scrub in arid washes, on mesas and slopes. Not all areas classified as coastal sage scrub are occupied.	Absent	Protocol surveys conducted in May and June 2018 did not detect this species on site. It is documented by the CNDDB as present approximately 1,500 feet to the west of the project site in adjacent open space (CDFW 2018a).
Pooecetes gramineus vesper sparrow	None/None G5 LA County Sensitive Bird Species (Part I List)	Winters in open grasslands and sparse shrublands in the valley and desert regions. This species is rarely found within habitat patches or along the wildland-suburban interface.	Low	The species may overwinter on the project site, but it is not expected to nest on site.
Porzana carolina sora (breeding)	None/None G5 LA County Sensitive Bird Species (Part I List)	Typical breeding habitat for the Sora consists of extensive wetlands with emergent cattail, bulrush, burreed, or sedge, but wet meadows and stream margins have also been used.	Not Expected	No suitable wetlands are present on site.
Rallus limicola Virginia rail	None/None G5 LA County Sensitive Bird Species (Part I List)	This rail occupies both freshwater and saltwater marshes in the county.	Not Expected	No suitable marshes are present on site.
Riparia riparia bank swallow	None/ Threatened G5/S2	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	Not Expected	No suitable riparian habitat or vertical banks and cliffs are present on site.
Setophaga petechia yellow warbler	None/None G5/S3S4 SSC	Riparian plant associations in close proximity to water. Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada. Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods, sycamores, ash, and alders.	Not Expected	No suitable riparian habitat is present on the project site.
Sialia currucoides mountain bluebird (wintering)	None/None G5 LA County Sensitive Bird Species (Part I List)	Occurs in remote expanses of grassland and irrigated pastureland.	Low	Potentially suitable grasslands are present on the project site for foraging; however, it is not expected to nest on site.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Sternula antillarum browni California least tern	Endangered/ Endangered G4T2T3Q/S2 FP	Nests along the coast from San Francisco Bay south to northern Baja California. Colonial breeder on bare or sparsely vegetated, flat substrates: sand beaches, alkali flats, landfills, or paved areas.	Not Expected	No suitable coastal habitat is present on site.
Sturnella neglecta western meadowlark	None/None G5 LA County Sensitive Bird Species (Part I List)	Occurs in grasslands and agricultural fields, primarily in the Antelope Valley	Low	Suitable grasslands occur on the project site; however, the project site is outside of the known breeding range of this species.
Thalasseus elegans elegant tern (breeding)	None/None G2/S2 WL LA County Sensitive Bird Species (Part I List)	Occurs in isolated islands within bays and estuaries.	Not Expected	No suitable bays and estuaries are present on site.
Thalasseus maximus royal tern (breeding)	None/None G5 LA County Sensitive Bird Species (Part I List)	Occurs in isolated islands within bays and estuaries.	Not Expected	No suitable bays and estuaries are present on site.
Toxostoma lecontei Le Conte's thrasher	None/None G4/S3 SSC LA County Sensitive Bird Species (Part I List)	Favors sandy washes with saltbush within creosote scrub or Joshua tree woodlands	Not Expected	No suitable desert scrub habitats are present on site.
Vireo bellii pusillus least Bell's vireo	Endangered/ Endangered G5T2/S2	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2000 ft. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, Baccharis, mesquite.	Not Expected	No suitable riparian habitat is present on site. This species was not detected during recent 2018 biological surveys.
Wilsonia pusilla Wilson's warbler (montane-breeding population and lowland-breeding population)	None/None G5 LA County Sensitive Bird Species (Part I List)	Riparian areas dominated by low willows and other shrubs, often within steep ravines on north-facing slopes.	Not Expected	No suitable riparian habitats are present on site.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Mammals				
Antrozous pallidus pallid bat	None/None G5/S3 SSC	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Low	Suitable rocky areas for roosting are not present on the site; however, suitable grassland for foraging is present on the site. This species has not been documented within 5 miles of the project site.
Choeronycteris mexicana Mexican long-tongued bat	None/None G4/S1 SSC	Occasionally found in San Diego County, which is on the periphery of their range. Feeds on nectar and pollen of night-blooming succulents. Roosts in relatively well-lit caves, and in and around buildings.	Not Expected	Project site is outside of known range of this species. Suitable succulents for foraging are not found on site.
Eumops perotis californicus western mastiff bat	None/None G5T4/S3S4 SSC	Many open, semi-arid to arid habitats, including conifer & deciduous woodlands, coastal scrub, grasslands, chaparral, etc. Roosts in crevices in cliff faces, high buildings, trees and tunnels.	Low	Suitable cliffs and tall buildings for roosting are not present on the site; however, suitable grassland for foraging is present on the site. This species has not been documented within 5 miles of the project site.
Lasionycteris noctivagans silver-haired bat	None/None G5/S3S4	Primarily a coastal and montane forest dweller, feeding over streams, ponds & open brushy areas. Roosts in hollow trees, beneath exfoliating bark, abandoned woodpecker holes, and rarely under rocks. Needs drinking water.	Not Expected	Suitable streams and ponds are not present on the project site.
Lasiurus cinereus hoary bat	None/None G5/S4	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	Not Expected	No suitable freshwater habitats are present on site or in the vicinity.
*Lasiurus xanthinus*western yellow bat	None/None G5/S3 SSC	Found in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats. Roosts in trees, particularly palms. Forages over water and among trees.	Not Expected	Suitable riparian habitat is not present on the project site.
Lepus californicus bennettii San Diego black-tailed jackrabbit	None/None G5T3T4/S3S4 SSC	Intermediate canopy stages of shrub habitats & open shrub/herbaceous & tree/herbaceous edges. Coastal sage scrub habitats in Southern California.	Low	Suitable shrub and open habitats are present on the project site; however, the species has not been documented within 5 miles of the project site.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Myotis yumanensis Yuma myotis	None/None G5/S4	Optimal habitats are open forests and woodlands with sources of water over which to feed. Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings or crevices.	Not Expected	No suitable freshwater habitats are present on site or in the vicinity.
Nyctinomops femorosaccus pocketed free-tailed bat	None/None G4/S3 SSC	Variety of arid areas in Southern California; pine-juniper woodlands, desert scrub, palm oasis, desert wash, desert riparian, etc. Rocky areas with high cliffs.	Not Expected	Suitable high cliffs for roosting are not present. Suitable desert habitats are not present for foraging.
Nyctinomops macrotis big free-tailed bat	None/None G5/S3 SSC	Low-lying arid areas in Southern California. Need high cliffs or rocky outcrops for roosting sites. Feeds principally on large moths.	Not Expected	Suitable high cliffs or rocky outcrops for roosting are not present. This species has not been documented within 5 miles of the project site.
Taxidea taxus American badger	None/None G5/S3 SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	Moderate	Suitable open habitat is present on the project site; however, no diagnostic sign of the species (e.g., burrows and digs) was observed during the surveys. This species was documented as roadkill along Colima Road approximately 1 mile from the project site in 2006 (CNDDB record and LSA Associates 2007).

Sources: 2018 biological resources surveys; Calflora 2019; CDFW 2018a; CNPS 2018a; Los Angeles County Sensitive Bird Species Working Group 2009; Herpetological Education and Research Project (HERP) 2019; e-Bird 2019.

Regional Vicinity refers to within a 9-quad search radius of site. All species from the Los Angeles County Sensitive Bird Species Part I List are evaluated.

Status: Federal/State

FE = Federally Endangered
FT = Federally Threatened
FC = Federal Candidate
FS = Federally Sensitive
PFT = Proposed Federal Threatened
FDL = Federal Delisted
SE = State Endangered
ST = State Threatened
SC = State Candidate
SR = State Rare
SDL = State Delisted
SSC = CDFW Species of Special Concern
FP = CDFW Fully Protected
WL = CDFW Watch List

CRPR (CNPS California Rare Plant Rank):

1A = Presumed Extinct in California
1B = Rare, Threatened, or Endangered in California and elsewhere
2 = Rare, Threatened, or Endangered in California, but more common elsewhere
3 = Need more information (a Review List)
4 = Plants of Limited Distribution (a Watch List)

CRPR Threat Code Extension:

.1 = Seriously endangered in California (>80% of occurrences threatened / high degree and immediacy of threat)
.2 = Fairly endangered in California (20-80% of occurrences threatened)
.3 = Not very endangered in California (<20% of occurrences threatened)

Other Statuses:

G1 or S1 Critically Imperiled Globally or Subnationally (state)
G2 or S2 Imperiled Globally or Subnationally (state)
G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5 Apparently secure, common and abundant
GH or SH Possibly Extirpated – missing; known from only historical occurrences but still some hope of rediscovery

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations

Additional notations may be provided as follows:

T – Intraspecific Taxon (subspecies, varieties, and other designations below the level of species)

Q – Questionable taxonomy that may reduce conservation priority

? – Inexact numeric rank

Appendix B-2

Oak Tree Survey

Hsi Lai Monastery Site

Oak Tree Report

prepared for

International Buddhist Progress Society
3456 Glenmark Drive
Hacienda Heights, California 91745
Contact: Ms. Gena Ooi
via email: gena.ooi@ibps.org

prepared by

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

September 2019

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
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2019 *Oak Tree Report, Hsi Lai Monastery Site.* Rincon Project No. 16-03582. September 6, 2019

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1 Introduction and Regulatory Context

Rincon Consultants, Inc. (Rincon) prepared this Oak Tree Report for the International Buddhist Progress Society (Applicant) as a component of an oak tree permit application package for the Hsi Lai Monastery Site Project (project). This Oak Tree Report is required by the Los Angeles County (County) Department of Regional Planning (DRP) as identified in their One-Stop Counseling Preliminary Comments for this project, LA County Project No. 2018-000207/RPPL2018000351. This report has been prepared in accordance with the County Oak Tree Ordinance (hereinafter Ordinance) (County Code of Ordinances Section 22.56.2050 *et seq*.). Pursuant to the Ordinance, an oak tree permit must be obtained prior to damaging[1] or removing any tree of the oak genus (*Quercus* spp.) that are:

- Eight inches or more in diameter (25 inches in circumference), as measured four and one-half feet (4.5’) above mean natural grade,
- Oaks with multiple trunks, where the combined diameter of any two trunks is twelve inches (28 inches in circumference) or more,
- Heritage oak trees, where the largest trunk is at least 36 inches in diameter, and any oak tree having significant historical or cultural importance to the community, notwithstanding that the tree diameter is less than 36 inches, and/or
- Provided as a replacement tree (Section 22.56.2180).

This report has also been prepared in accordance with the Los Angeles County Oak Woodlands Conservation Management Plan (Woodland Plan) (County of Los Angeles 2011) and the accompanying Woodlands Conservation Management Plan Guide (Woodland Guide) (County of Los Angeles 2014). The objectives of the Woodland Plan are to prioritize the preservation of oak woodlands, promote conservation by integrating oak woodlands into the development process in a sustainable manner, and effectively mitigate the loss of oak woodlands. The Woodland Guide implements portions of the Woodland Plan and focuses on potential impacts to oak woodlands from proposed developments. The Woodland Guide defines oak woodlands as:

> An oak stand, including its understory, which consists of two or more oak trees (all native trees of the genus Quercus) of at least five inches in diameter (of the largest trunk) measured at 4.5’ above mean natural grade, with greater than 10% canopy cover or that may have historically supported greater than 10% canopy cover as early as January 1, 2005 (effective date of California Public Resources Code Section 21083.4).

The goal of this report is to meet all terms, conditions, and stipulations of the Ordinance and Woodland Plan in documenting removal or impacts to protected trees (trees that qualify for protection based on the size requirements discussed above) within the project site as deemed necessary by the project description and plans. Oak trees may be removed, or the Tree Protected

[1] Damage is defined as any act causing or tending to cause injury to the root system or other parts of a tree, including but not limited to, operation of equipment or machinery, paving, trenching, or excavating within the Tree Protection Zone of an oak tree.

Zone (TPZ)[2] and/or the oak woodland encroached upon, in accordance with the stipulations and requirements outlined in the Ordinance and Woodland Plan.

The findings of this report will be incorporated into the project's Environmental Impact Report (EIR) that will fulfill the California Environmental Quality Act (CEQA) requirements.

[2] The Tree Protected Zone (TPZ) is defined as the surface and subsurface area within the dripline of a protected oak tree and extending to a point of five feet or greater outside the dripline, or 15 feet from the trunks of a tree, whichever distance is greater (County of Los Angeles, 1988). The dripline is the outermost edge of the tree's canopy.

2 Project Location and Description

The project site occurs on a 28.96-acre property on the west side of Hacienda Boulevard, located in the unincorporated community of Hacienda Heights in Los Angeles County, as depicted on Figure 1. The project site is located in the eastern San Gabriel Valley and bounded by the City of Industry to the north, and the Cities of Whittier and La Habra Heights to the south. The site is approximately 1.5 miles south of California State Route 60, and about 5.5 miles east of Interstate 605. Specifically, the site is directly west of the Hsi Lai Buddhist Temple, which is located at 3456 South Glenmark Drive. The site is depicted on the U.S. Geological Survey (USGS) *La Habra, California* 7.5 minute topographic quadrangle map and is within Section 30 of Township 2 South and Range 10 West.

The property is comprised of Assessor's Parcel Numbers (APNs) 8240-036-021, 8291-035-020 and 8291-035-021. APNs 8240-036-021 and 8291-035-020 are undeveloped with no existing structures. APN 8291-035-021 contains a single family residential building. Draper Road, an east-west oriented dirt road that is gated where it connects to Hacienda Boulevard, traverses through the middle of the project site. Other minor dirt access roads and pads are also present in the immediate vicinity, associated with a Southern California Edison powerline transmission corridor to the south of the site.

For the purpose of this report, the project involves two overlapping areas: the project site and the survey area. The survey area includes the project site and a 200-foot buffer around the project site (as required by the Ordinance and Woodland Plan) that illustrates the extent of oak woodland and the potential project-related impacts, as seen in Figure 2. The survey area is located at the southeastern edge of Los Angeles County and the climate is characterized by long, hot, dry summers and short, relatively wet winters. Average high temperatures range from 70 to 89 degrees Fahrenheit (°F) and average low temperatures are 47 to 65°F. The average annual precipitation in the region is 10.91 inches, with most of the rainfall occurring December to March (National Oceanic and Atmospheric Administration 2018).The site is characterized by moderate to steep sloping ridges with elevations ranging from approximately 660 to 865 feet above mean sea level. The vegetation is composed primarily of disturbed non-native grassland, interspersed with California sagebrush scrub, and concentrated coast live oak woodland. Oak trees and woodlands are located primarily in one grove on steep slopes surrounding the main drainage and riparian area in the southeast portion of the site, with additional oak trees scattered throughout the southeastern survey area.

The proposed project consists of approximately 143,671 square feet of building area of monastery facilities, primarily oriented east to west, with two-story buildings and a large reception/meditation complex. One existing structure of 5,318 square feet will remain onsite. The 17 proposed separate structures consist of meditation halls, classrooms, dormitories, recreational facilities, and multifunctional buildings which are situated along the existing hillsides. The project will entail the development of one main east to west paved road, pedestrian paths, and a nature trail with a bridge, as well as maintenance of an existing trail. A total of 281 parking spaces are proposed: 266 are located below various buildings and the remaining 15 are parallel parking spaces along the access roadway.

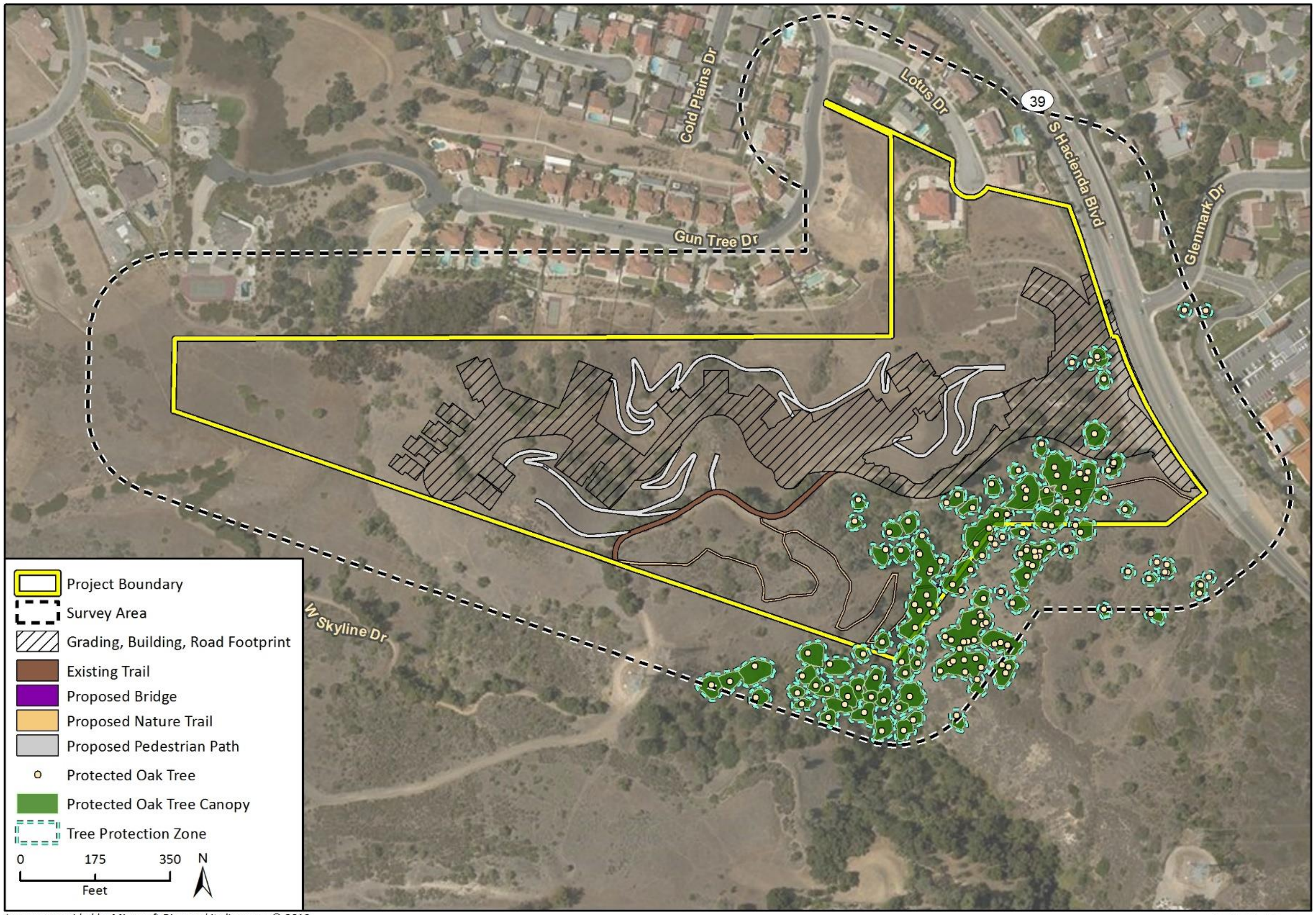
The Applicant provided grading and site plans dated September 6, 2019, and conceptual drawings of the nature trail dated September 2019, in the form of Computer Aided Design (CAD) files created by Dax Consulting, NAC Architecture, and SALT Landscape Architects. These files were utilized for the tree survey and report.

Figure 1 Project Site and General Site Plan

Imagery provided by Microsoft Bing and its licensors © 2019.

Oak Fig 1 Property Boundary

Figure 2 Overview of Protected Oak Trees within Survey Area



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3 Oak Tree Survey Methodology

3.1 Individual Oak Trees

A tree inventory and health assessment was conducted for oak trees observed within the survey area, excluding saplings. The trees were mapped using a Trimble Global Positioning System (GPS) device, as feasible, and visually evaluated based only on the above ground portions of each tree.

The oak tree survey was conducted by Rincon's International Society of Arboriculture (ISA) Certified Arborists, Yuling Huo (Certification #WE-11975A), Stephanie Lopez (Certification #WE-10442A), and Kyle Weichert (Certification # WE -12113A) on June 18 to June 20, 2018, in accordance with the requirements set forth by the Ordinance and Woodland Plan. Based on site observations, Rincon assumes that no trees are being irrigated or maintained. The following information was gathered for inventoried trees:

- Scientific and common name;
- Geographic location of each tree using a Trimble® Geo 7x handheld GPS with integrated *rangefinder*, including extent of tree canopies where feasible;
- Diameter of all trunks at four and one half feet (4.5') above natural grade (i.e., diameter at standard height [DSH])[3] using an English unit diameter tape or caliper;
- Visual estimation of tree height and canopy spread;
- Health assessment of tree characteristics including evidence of disease, presence of insect pests, structure, damage, and vigor. Results were incorporated into the overall condition rating based on archetype trees of the same species with criteria described in Table 1 below; and
- Photo documentation of overall habitat.

All trees inventoried were tagged with a unique identifying number and mapped as individual tree locations, except where access was limited due to steep erosive slopes and/or hazardous conditions (i.e., presence of excessive poison oak). Where access was limited, the DSH, number of trunks, canopy height and spread, health, and vigor of the trees were estimated using binoculars. Relationships among the trees (i.e., multiple trunks arising from the same root, mature clones of a no longer present parent tree) were not determined, as only above-ground portions of the trees were examined. Please note that steep geographic locations may have errors in accuracy due to tree crowns/canopies blocking satellite signal and steep slopes distorting satellite positioning.

Appendix A provides an Oak Tree Matrix summarizing the details discussed above for each tree inventoried. Tree protection type and heritage oak designations are also provided in Appendix A. Representative site photographs are provided in Appendix B.

[3] DSH is used to determine the measurement of trunk size above the natural swelling at the base of the trunk, known as the trunk flare. Trees were considered to have multiple trunks when trunks were split below 4.5 feet above natural grade, and if physical contact of the trunks at the base of the tree could be observed without disturbing soil cover. In some cases, if leaf litter could be removed without disturbing soil and a connection was observed, the stem/trunk was lumped into the multi-trunk tree. DSH of each trunk was recorded for trees with multiple trunks at or below DSH and the GPS tree location was taken as close as possible to the largest/main trunk. Where deformity occurred at 4.5 feet, measurement was taken immediately below or above deformity, as close to 4.5 feet above natural grade as possible. For smaller or immature trees where branching occurred at or below 4.5 feet, measurement was taken below branching at the smallest diameter of the trunk(s).

Table 1 Overall Condition Rating Criteria

Rating	Structure
Excellent	In addition to attributes of a 'good' rating, the tree exhibits a well-developed root flare and a balanced canopy. Provides shading or wildlife habitat and is aesthetically pleasing.
Good	Trunk is well developed with well attached limbs and branches; some flaws exist but are hardly visible. Good foliage cover and density, annual shoot growth above average. Provides shading or wildlife habitat and has minor aesthetic flaws.
Fair	Flaw in trunk, limb and branch development are minimal and are typical of this species and geographic region. Minimal visual damage from existing insect or disease, average foliage cover and annual growth.
Poor	Limbs or branches are poorly attached or developed. Canopy is not symmetrical. Trunk has lean. Branches or trunks have physical contact with the ground. May exhibit fire damage, responses to external encroachment/obstructions or existing insect/disease damage.
Dead	Trunk, limbs or branches have extensive visible decay or are broken. Canopy leaves are non-seasonally absent or uniformly brown throughout, with no evidence of new growth.

3.2 Oak Woodland

To determine the extent of oak woodlands, the crown dripline for each native oak tree that meets the size requirements per the Woodland Plan was digitally rendered where feasible, or the crown spread from the survey was used to approximate the dripline. Per the Woodland Guide, a buffer of 10-times the distance from the trunk to the dripline was applied to each tree, and any trees with overlapping buffers were considered to be part of an oak woodland.

Hereinafter, the "Individual Oak Trees" sub-sections will only discuss trees that meet the size requirements for protection under the Ordinance (eight inches or greater in DSH; 12 inches or greater for multi-trunks) and are located within the project site. The "Oak Woodlands" sub-sections will discuss all native oak trees that meet the size requirements for protection by the Woodland Plan (five inches or greater in DSH for the largest trunk) and are located within the survey area. Note that all Ordinance (individually) protected trees, excluding the non-native oak species, are also protected by the Woodland Plan.

4 Oak Tree Survey Results and Discussion

A total of 153 individually and woodland-protected oak trees have at least a portion of their TPZs occurring within the survey area. Of those 153 protected trees, 65 have at least a portion of their TPZs occurring within the project site.

4.1 Individual Oak Trees

A total of 135 individually protected oak trees have at least a portion of their TPZs occurring within the survey area, as seen in Figure 2 and Figure 3. These include 129 coast live oaks (*Quercus agrifolia),* five cork oaks (*Quercus suber*), and one Island oak (*Quercus tomentella*), observed on the eastern half of the survey area. Five of the coast live oak trees (Trees 46, 96, 145, 149, and 160) qualify as Heritage Trees. Oaks that are not protected by the Ordinance or Woodland Plan are not discussed in this report or assessed for impacts, but are listed in Appendix A.

Of the 135 individually protected oak trees, 88 (65%) were in Good overall condition, 45 (33%) were in Fair condition, and two trees (1%) were in Poor condition per the rating criteria in Table 1 above. Data for Trees 136-167 was gathered using aerial imagery and/or observations from a distance greater than 100 feet due to inaccessibility (arborist hiked as far southwest from Hacienda Boulevard as feasible until terrain was unsafe, and as far south and east from Draper Road as feasible until dense poison oak was present and/or terrain was unsafe). The physical tag for Tree 36 may be missing or inaccurate due to surveying error.

As this is still the preliminary/conceptual phase of the project, recommendations to improve tree health (such as application of insecticides, fertilizer, or pruning) were not included in this report at this time; however such recommendations will be made following impacts to protected trees to reduce the risk of decline in the trees’ health and to aid in the trees’ survivability.

Note that Figure 2 through Figure 9 depict all oak trees in the project site and survey area that are protected by the Ordinance, Woodland Plan, or both.

4.2 Oak Woodlands

Approximately 8.87 acres of oak woodlands were identified within the survey area, as depicted in Figure 4. The woodlands have been classified as Intact, Moderately Degraded, or Severely Degraded based on the Existing Conditions Table of the Woodland Guide. The majority of the woodlands in the survey area are intact (8.73 acres) and defined as being in a wild state where all ecological functions such as groundwater infiltration, shade, habitat, nutrient cycling, and carbon sequestration occur and the stand is self-sustaining and regenerating. The understory is dominated by invasive grasses and forbs, but the woodland supports associated flora and fauna and has not been subject to destructive land practices. Two trees are located across South Hacienda Boulevard on the northeast corner of the survey area in the adjacent Hsi Lai Buddhist Temple property. These trees make up a severely degraded woodland (0.14 acre), which has been drastically altered and fragmented by the establishment of paved roadways, cemented sidewalks, and landscaping (Los Angeles County 2014). Per the Impact Severity Table of the Woodland Guide, impacts to woodlands are classified as Low, Moderate, or High. Intact woodlands may be significantly impacted by even

Figure 3 Detail of Protected Oak Trees Within Survey Area

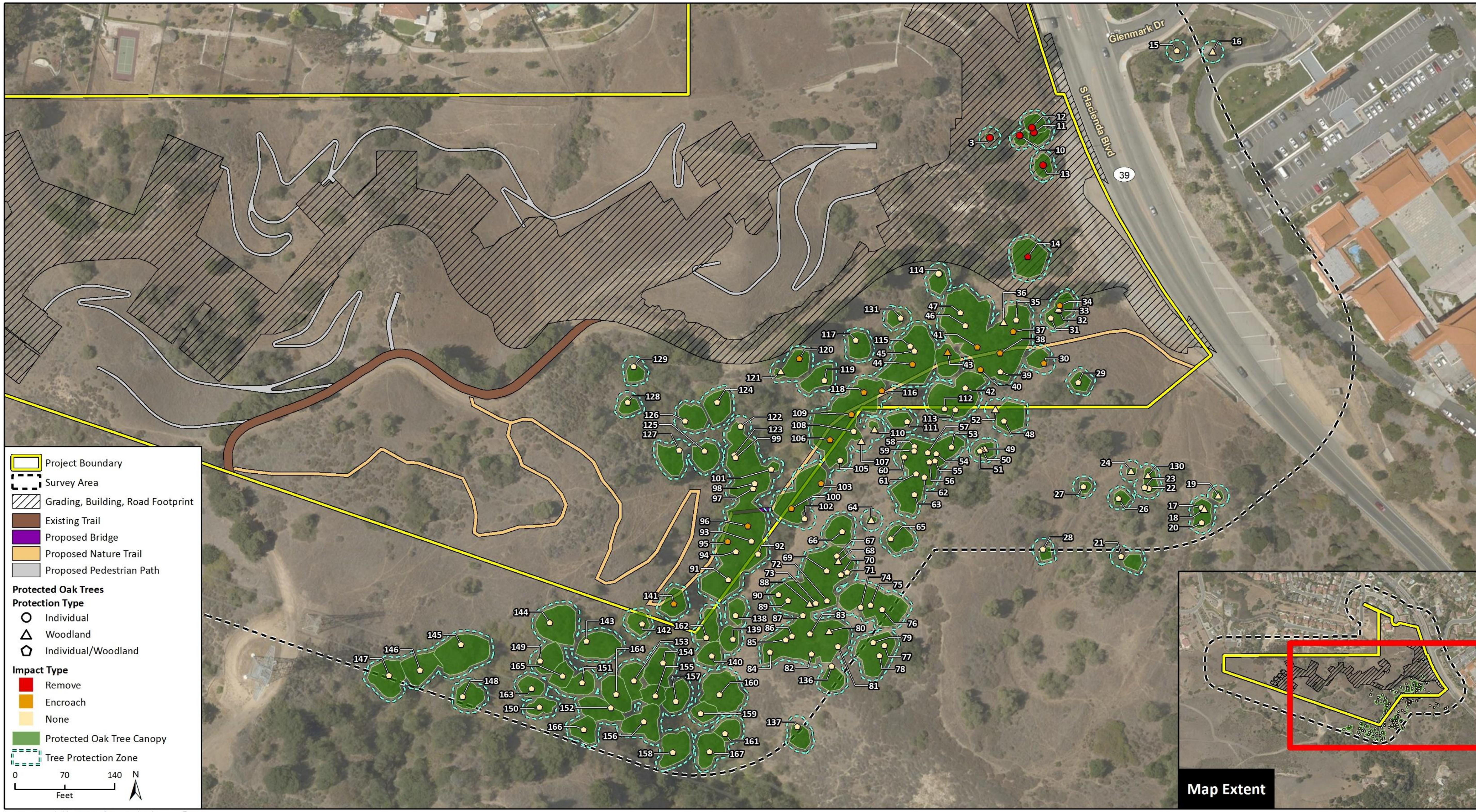

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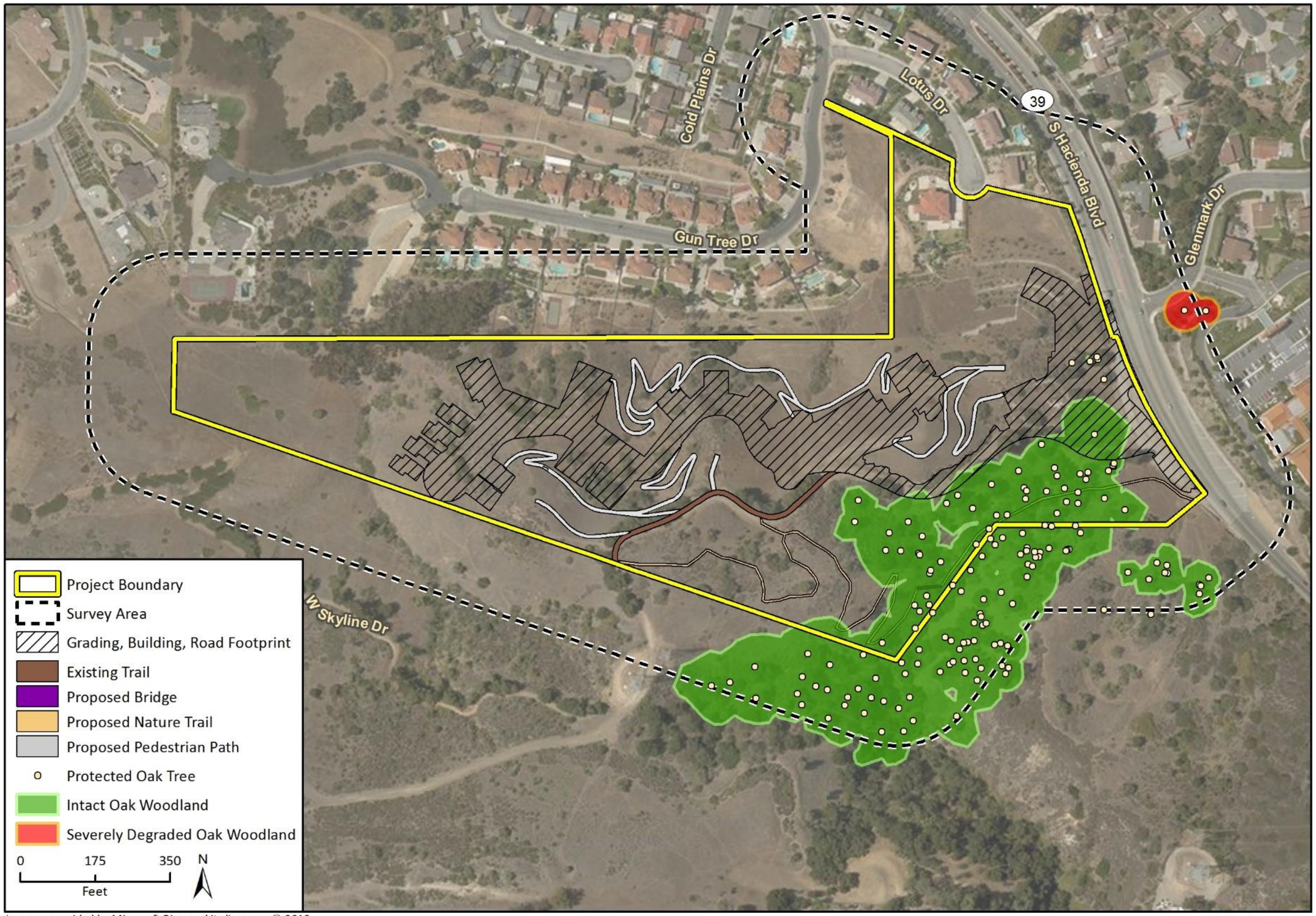
Figure 4 Overview of Oak Woodlands within Survey Area



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low severity impacts (minimal site or spatial disturbance). Fragmentation can occur with the introduction of roads, stream crossings, and/or exotic invasive species. Any alterations to intact woodlands should be avoided to the greatest extent feasible.

Within the 8.87 acres of oak woodlands, there are a total of 147 native oak trees that are protected by the Woodland Plan. Of these 147 woodland trees, 96 (approximately 65%) were identified as being in Good condition and 49 (approximately 33%) oak trees were classified as being in Fair condition. The remaining 2 (approximately 1%) trees were identified as being in Poor condition, as defined in Table 1. For the purpose of this report and based on recommendations from the Woodland Plan (pages 90-91), Rincon assumes that woodland trees have the same TPZs as is defined by the Ordinance (five feet or greater from the dripline, or 15 feet from the trunk, whichever is greater). Two trees (Trees 4 and 5) at the northeast corner of the site meet the size requirement for protection under the Woodland Plan; however, they do not make up and are not likely to have historically supported a 10% canopy cover (per the Woodland Plan definition). As such, these trees are not considered protected, and are not included in the total number of woodland trees discussed here.

5 Impact Summary

5.1 Individual Oak Trees

For the purpose of this report, it was assumed that protected oaks with impacts to approximately 50% or more of the TPZ or with trunks occurring within the project footprint will be removed. Trees with impacts to less than approximately 50% of the TPZ are considered encroached upon. All protected trees that will be impacted are bolded in Appendix A and summarized in Table 2.

Per the project's September 2019 grading and site plans, six individually protected oak trees have trunks occurring within the grading/building footprint and therefore are proposed for removal. Seventeen individually protected oak trees have TPZs that may be encroached upon by building/grading and/or the nature trail and bridge construction activities, as seen in Figure 5. The nature trail and bridge were specifically designed to minimize impacts to protected trees, therefore regardless of tree trunk location or amount of canopy shown as overlapping the nature trail and bridge footprint, trees with TPZs occurring in those areas will be encroached upon but not removed.

The ISA typically recommends that not more than 25% of the crown or foliage of a tree be removed in an annual growing season (American National Standards Institute [ANSI] 2017). The ISA also recommends that activities affecting the roots of a tree impact no more than 20-25% of the root zone. Impacts to more than 25% of the root zone of a tree can lead to rapid decline in tree health, and impacts to 40-50% of the root zone of a tree typically result in death of the tree (United States Department of Agriculture, 2003; California Department of Forestry (CDF), 1989a; CDF, 1989b). Removal of larger roots (particularly lateral or sinker roots and roots greater than two inches in diameter) can severely impact the stability of the tree. Healthy and young trees may tolerate impacts to as much as 50% of their crown or root system, which are located within the TPZ (Sinclair, Lyon, and Johnson 1987), however trees that are relatively large and/or old for the species or already under stress will have lower tolerances. Adherence to the mitigation measures discussed in Section 6 would minimize impacts to protected trees. In the event that encroachment of the TPZ exceeds 50% or is too great to allow survival of a protected tree, as determined by a Certified Arborist, the impact status would be elevated to removal. Appropriate mitigation would be necessary as detailed in Section 6.

5.2 Oak Woodlands

The impact assessment for oak woodlands was conducted by overlaying the September 2019 project grading/building and nature trail footprints with the mapped oak woodlands, using Geographic Information System (GIS) software, as seen in Figure 6. The impact levels were assessed using the Impact Severity Matrix from the Woodland Guide. Per the Impact Severity Table, impacts to woodlands are classified as Low, Moderate, or High; if any impact occurs to intact woodlands (Low, Moderate, or High), the impact would be considered significant. Of the 8.87 acres of oak woodlands in the survey area, a total of 0.62 acres (7%) of intact woodlands would be significantly impacted by project activities. The TPZs of 18 woodland trees (17 of which are also individually protected trees) would be encroached upon by grading/building and/or nature trail/bridge activities.

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Figure 5 Impacts to Protected Oak Trees

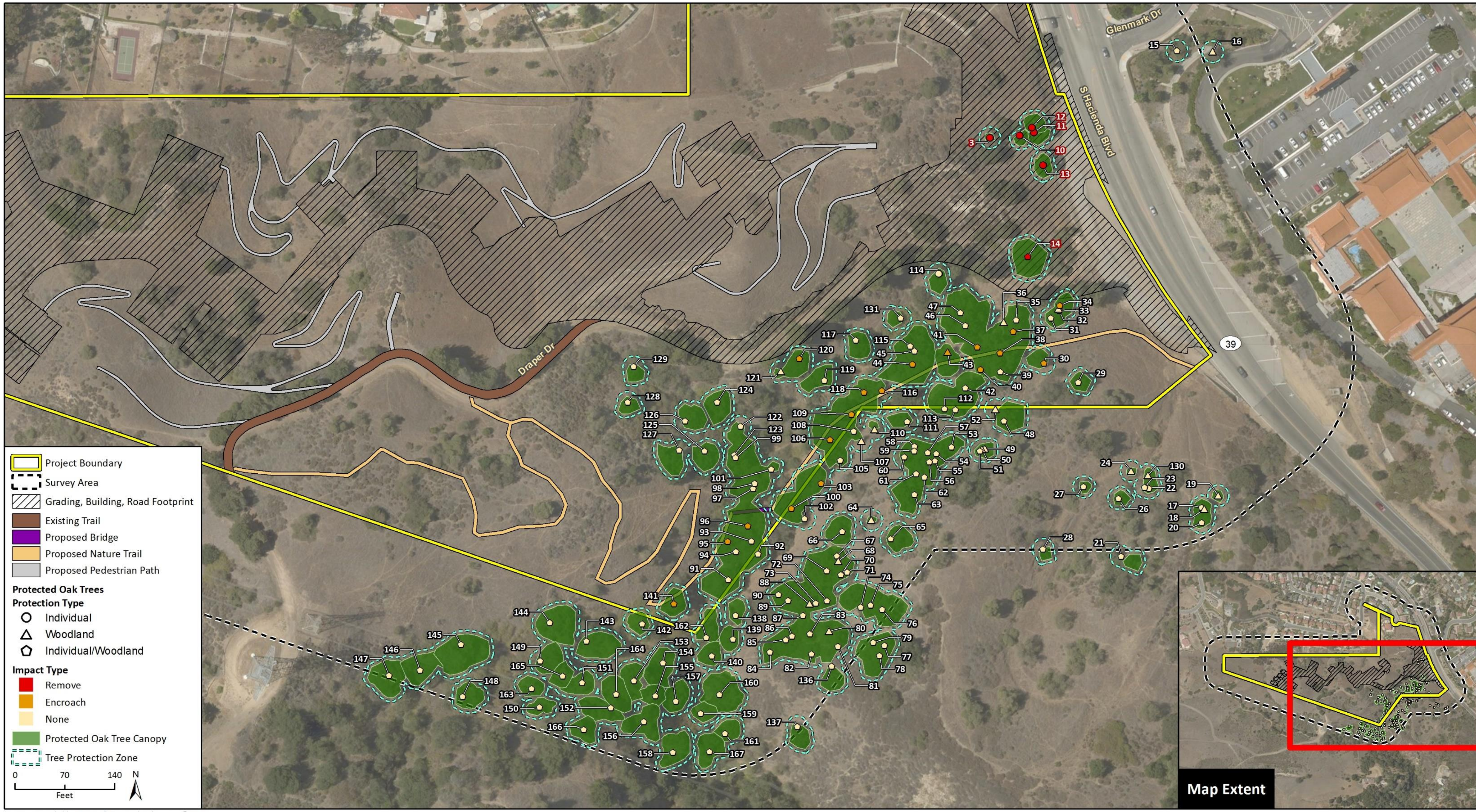

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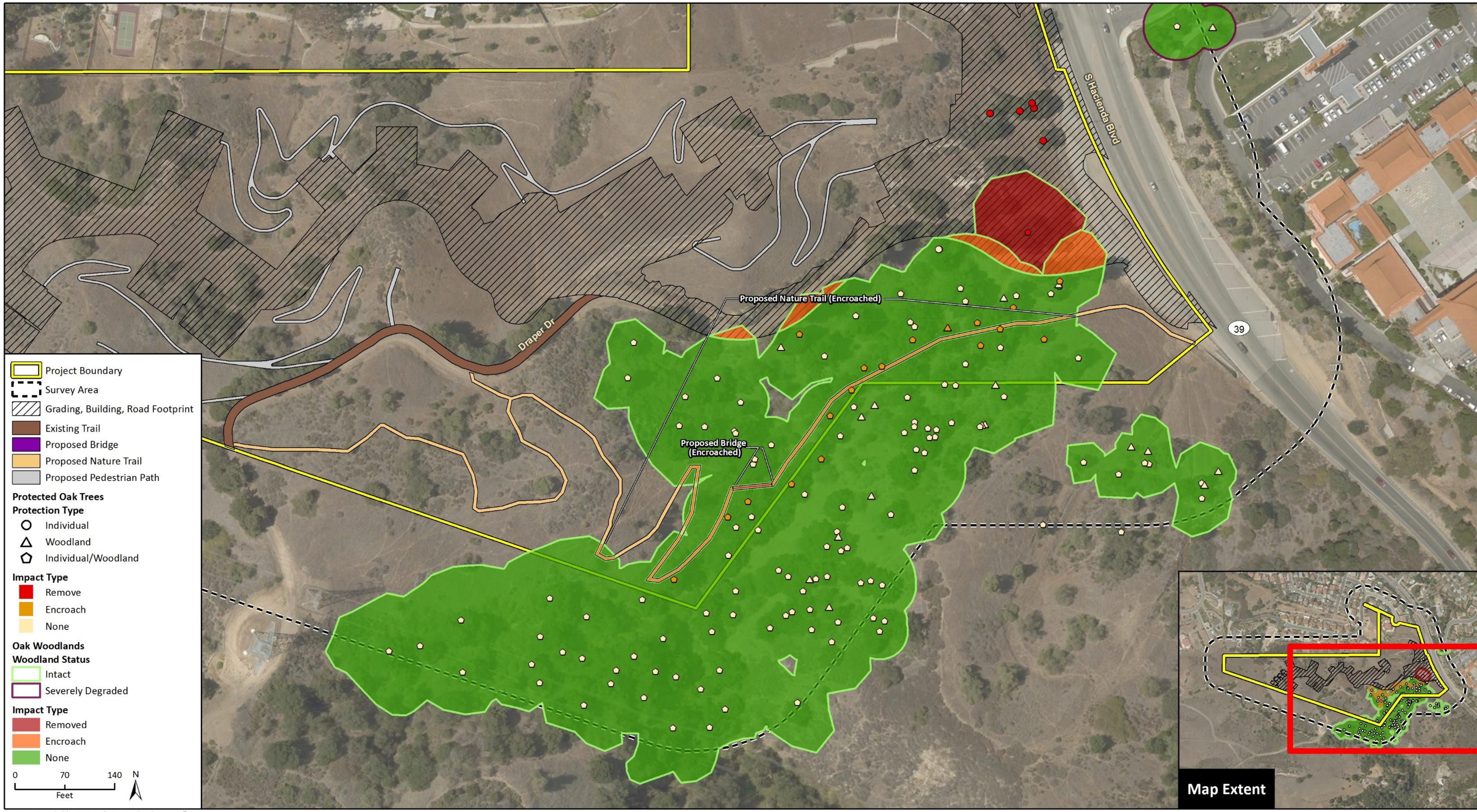
Figure 6 Impacts to Oak Woodlands by Category



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The grading and building footprint would impact 0.50 acre of intact woodlands and the impacts would be considered significant. The impact severity would be moderate to high per the Woodland Guide Severity Matrix, and would include removal of one woodland tree and encroachment into woodland at the southern edge of the footprint. There would be some loss of habitat features caused by removal of the canopy, edge creation would occur in the northeast corner, and new infrastructure would expand into previously undeveloped areas. However, a major road already exists within the footprint, and invasive species have already been introduced. Regeneration would still be possible throughout the remaining woodland.

The nature trail and bridge footprint would impact 0.12 acre of intact oak woodlands and the impacts would be considered significant. The impact severity would be moderate and result in some fragmentation due to the addition of a trail and bridge (drainage crossing). The TPZs of 18 woodland trees (including the 17 individually protected trees) would be encroached upon by the nature trail footprint. Rincon assumes that encroachment would occur to less than 50% of the TPZs of woodland trees along the nature trail and bridge because the construction in those areas would be designed specifically to minimize impacts. Adherence to the mitigation measures discussed in Section 6 would minimize impacts to protected trees. In the event that encroachment of the TPZ is too great to allow survival of a protected tree as discussed in Section 5.1, the impact status would be elevated to removal. Appropriate mitigation would be necessary as detailed in Section 6. Impacts to individual trees and oak woodlands are summarized in Table 2.

Table 2 Impact Summary

Protection Type	Impact Type	Development Activity	Acres	# of Trees	Tree ID #
Individual	Remove	grading	N/A	6	3, 10, 11, 12, 13, **14***
	Encroach (TPZ)	grading; nature trail and bridge	N/A	17	**30, 34, 37, 38, 40, 41, 44, 95, 96, 100, 103, 106, 109, 116, 118, 120, 141**
Woodland	Remove/ Encroach (Woodland)	grading	0.50	1 (remove)	**14**
	Encroach (Woodland)	nature trail and bridge	0.12	18 (encroach TPZ)	**30, 34, 37, 38, 40, 41,** 43**, 44, 95, 96, 100, 103, 106, 109, 116, 118, 120, 141**

*Tree numbers that are bolded meet the requirements for both the Ordinance and Woodland Plan (i.e. both individually and woodland protected).

5.3 Fuel Modification Zones

Several protected oak trees are located within the Fuel Modification Zones designated by the Los Angeles County Fire Department, Zones A, B, and C as depicted on Figure 7 and Figure 8. Fuel modification zones have specific requirements for vegetation removal around buildings, structures, and public/private fire access roads to prevent fire hazards. Because the protected oaks located within these zones are native and evergreen (coast live oaks), they will not warrant removal based on Rincon's experience with the County forester.

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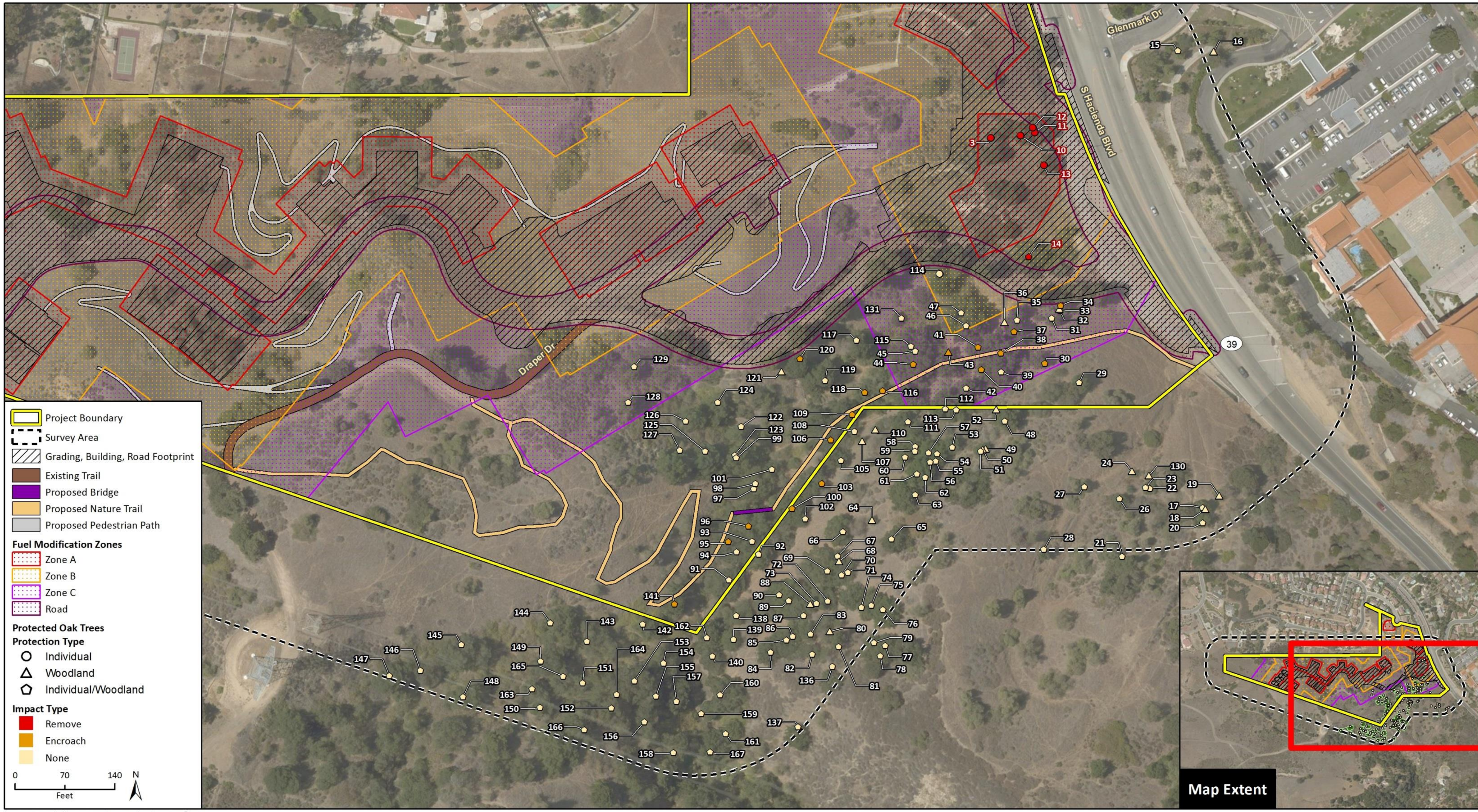
Figure 7 Overlay of Fuel Modification Zones on Protected Oak Trees



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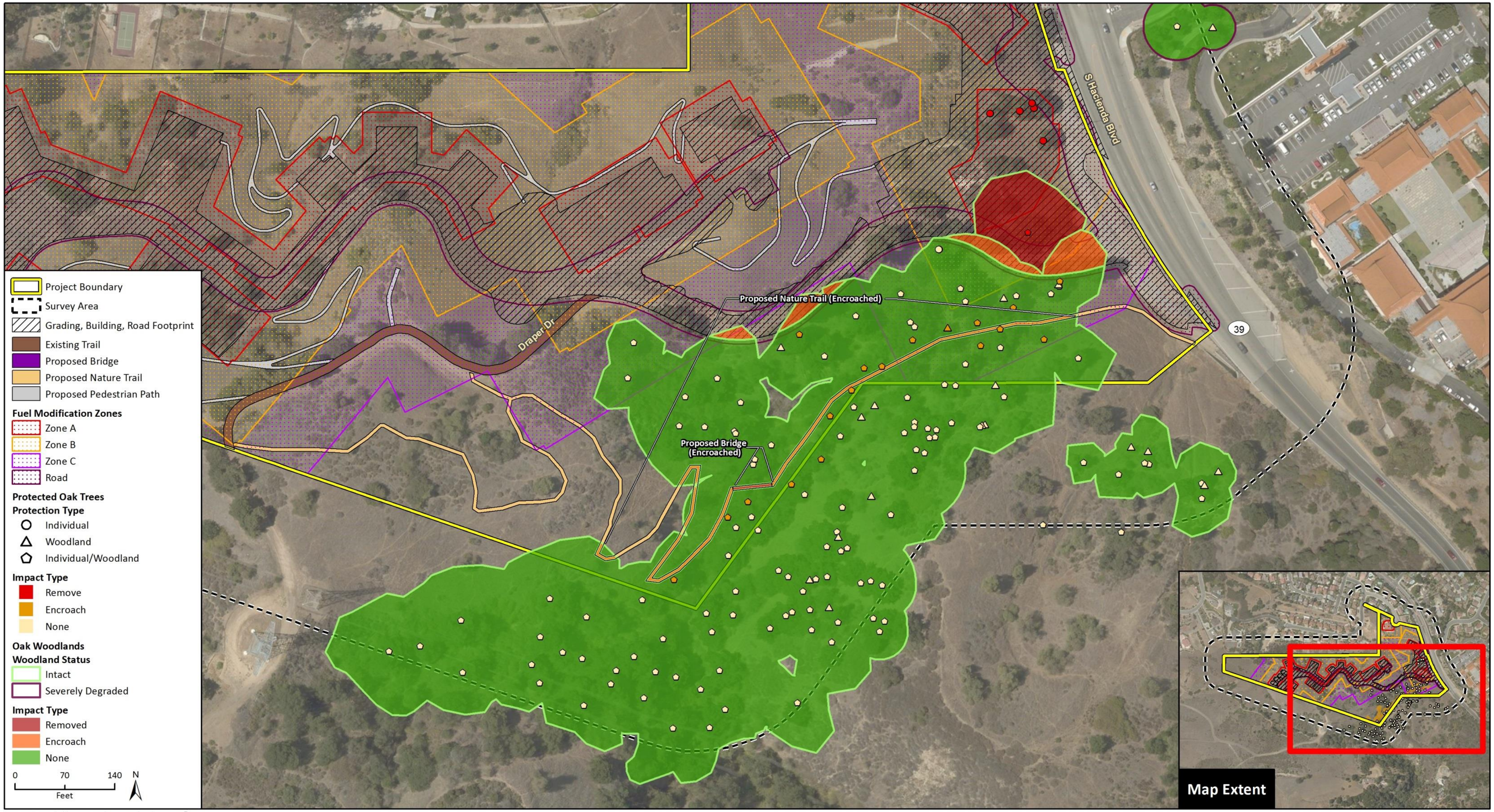
Oak Fig 7 Oak Fuel Mod 11x17

Figure 8 Overlay of Fuel Modification Zones on Oak Woodlands



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6 Mitigation Requirements

A total of six individually protected oak trees would be removed, requiring an oak tree permit from the County. Per the Ordinance, removal of protected trees is necessitated by the following finding:

- Existence at present locations hinders development to an extent that alternative development plans cannot achieve the same permitted density or that cost of such alternatives would be prohibitive, or that placement of such trees prevents the reasonable and efficient use of such property for a use otherwise authorized

Approximately 0.62 acre of intact woodland are proposed to be significantly impacted. Per the Woodland Plan, if a project cannot be redesigned to avoid significant impacts to oak woodlands, mitigation is required. In addition, the mitigation and maintenance measures below are suggested to mitigate the loss and impacts to oak trees and woodlands.

6.1 Individual Oak Trees

Individually protected trees would be replaced at a 2:1 ratio for standard sized oak trees and 10:1 for heritage oaks removed during construction activities. For the proposed project, the replacement ratio for six standard sized oak trees would result in the replacement planting of 12 trees. No heritage trees are proposed to be removed. The remaining oak trees occurring within the project site are either being encroached upon but not removed, are not protected trees, or occur outside of the proposed plan footprint and are therefore not expected to be affected by proposed project related activities. As such, no additional mitigation is required for these remaining trees.

If the County forester determines that replacement of any oak trees proposed for removal is inappropriate[4], the forester may recommend payment into the County's Oak Forest Special Fund. The in-lieu mitigation amount shall be calculated by utilizing the Guide for Plant Appraisal, 10th Edition (Council of Tree and Landscape Appraisers [CTLA] 2018) and the Species Classification and Group Assignment, A Regional Supplement (Western Chapter of the International Society of Arboriculture [WCISA] 2004). Calculation of the oak tree's values would occur only if in-lieu mitigation is recommended by the County forester.

Seventeen individually protected oak trees would be encroached upon by project activities. If any of the encroached upon trees are impacted by project activities to the point that the respective tree dies within the two year monitoring period discussed in Section 7.1, the tree shall be replaced at the ratio described above.

6.2 Oak Woodlands

Recommended mitigation measures for projects resulting in a significant impact to oak woodlands are identified below and are based on the Woodland Plans' recommendations (pages 92-96). The

[4] Determination for the requirement of replacement trees involves factors such as vegetative character of the surrounding area, number of protected trees proposed for removal in relation to number of existing protected trees on site, and/or anticipated effectiveness of replacement trees.

mitigation measures are prioritized by preference for intact woodlands. If avoidance is not possible, then one of the following shall be implemented:

- Acquire oak woodland habitat that is comparable to the habitat that was impacted.
- Restore degraded oak woodlands: Off-site restoration shall be prioritized over on-site restoration and where feasible, shall be located nearby the impacted property, preferably within the same watershed or sub-drainage as deemed appropriate by the County forester and the staff biologist, or within the same planning area as the impacted property.
    - Off-site restoration may include any of the following:
        - Acquiring off-site fee title for oak woodland habitat.
        - Replacement planting.
        - Restoring moderately or severely degraded oak woodlands. More specifically, removing exotics and restoring appropriate native plant diversity.
    - On-site restoration shall be utilized when circumstances at the site allow for long-term sustainability of the replacement plantings, the potential to expand/connect to adjacent oak woodlands, and/or the improvement of degraded oak woodlands. The Permittee shall replace/restore lost canopy area. More specifically, replacement trees shall provide mitigation trees of the same oak species, as feasible. All replacement trees shall be planted on native undisturbed soil and shall be the same species of oak as the removed tree with appropriate associated native vegetation in the understory. The location of the replacement tree shall be in the vicinity of other oak trees of the same species. If replacement trees cannot be planted on native undisturbed soil or are not in the vicinity of the same species of oak as the removed tree, the County forester may require additional conditions to ensure that trees thrive.
- Contribute to Los Angeles County's Oak Forests Special Fund at a minimum 2:1 canopy cover area for the amount removed.
- Other mitigation measures developed by the County.

The following provisions apply to the aforementioned mitigation options:

- To ensure that mitigation measures are implemented, the County forester may require the project applicant post a bond in the amount determined by the County forester.
- If possible, on-site mitigation areas or off-site mitigation land shall be located adjacent to preserved natural open space unless there are reasons that outweigh this priority (like contributing to a linkage or preserving a specific location with special status species on the mitigation site). The location of on-site mitigation areas or off-site mitigation land requires County forester and staff biologist approval.
- Mitigation areas or land shall be at a minimum of 2:1 canopy cover area for the amount removed. This is the expected canopy extent of mature trees. A more convenient way to think of it might be to base it on stem density, then apply that density over twice the acreage of the impacted area.
- All mitigation areas or land shall be placed in a conservation easement. If a conservation easement is not possible, the land shall be protected in perpetuity by other means deemed acceptable by the County. Mitigation land may be designated public open space if appropriate.

Mitigation, at a 2:1 ratio, for the significant impact of approximately 0.62 acres of oak woodland requires replacement plantings of 1.24 acres. Individual oak tree replacement plantings would also serve to meet mitigation for the replacement of oak woodlands. Trees, and woodlands, shall be planted adjacent to preserved natural open space areas of this development or other off site areas proposed by the applicant provided with written approval from the County forester.

Mitigation for oak woodlands shall be monitored and reported on over a seven-year period and shall incorporate an iterative process of annual monitoring and evaluation of progress and allow for adjustments to the program, as necessary, to achieve desired outcomes and meet the established success criteria. The project may be extended if success criteria have not been met at the end of the seven-year period to the satisfaction of the County forester.

A total of 18 woodland trees (17 of which are also individually protected) would be encroached upon by project activities. If any of these encroached upon trees are impacted by project activities to the point that the respective tree dies within the seven year monitoring period discussed in Section 7.2, there would be an additional loss of oak woodlands, which would necessitate additional replacement plantings at the ratio described above. In addition, further encroachment than what is described in this report upon the area 10 times the dripline of these woodland trees would result in significant impacts to intact woodlands and would also necessitate additional replacement plantings.

6.3 Tree Protection Measures for Encroached-upon Trees

A total of 147 individually and woodland protected trees would remain, with at least a portion of their TPZs within the survey area, during and after construction. Of those 147 trees, 59 would remain, with at least a portion of their TPZs within the project site, during and after construction. For individually and woodland protected trees that remain, the following measures, as outlined in Section 22.56.2180 of the Ordinance, shall be implemented (per the Woodland Plan, the protective measures from the Ordinance can also be applied to woodland trees):

- The installation of highly visible and sturdy fencing not less than four feet in height around the protected zone of trees shown on the site plan. Said fencing shall be in place and inspected by the forester and fire warden prior to commencement of any activity on the subject property. Said fencing shall remain in place throughout the entire temporary period of development/construction and shall not be removed without written authorization from the director or the forester and fire warden. Fencing shall be around all trees within 50 feet of any construction activity, inclusive of staging areas, turnarounds, and approach routes, as feasible;
- Where grading or any other similar activity is specifically approved within the TPZ, the Applicant shall provide an individual with special expertise acceptable to the director to supervise all excavation or grading proposed within the protected zones and to further supervise, monitor, and certify to the county forester and fire warden the implementation of all conditions imposed in connection with the applicant's oak tree permit;
- That any excavation or grading allowed within the TPZ be limited to hand tools or small hand-held power equipment;
- That trees on other portions of the subject property not included within the site plan also be protected with chain link fencing thus restricting storage, machinery storage, or access during construction;

- That all the trees safely accessible on the site plan be physically identified by number on a tag affixed to the north side of the tree in a manner preserving the health and viability of the tree. The tag shall be composed of a noncorrosive all-weather material and shall be permanently affixed to the tree. The tree shall be similarly designated on the site plan in a manner acceptable to the director;
- That corrective measures for trees noted on the oak tree report as requiring remedial action be taken, including pest control, pruning, fertilizing and similar actions;
- That, to the extent feasible as determined by the director, utility trenching shall avoid encroaching into the TPZ on its path to and from any structure; and
- At the start of grading operations and throughout the entire period of development, no person shall perform any work for which an oak tree permit is required unless a copy of the oak tree report, location map, fencing plans, and approved oak tree permit and conditions are in the possession of a responsible person and also available at the site.

In addition, the following BMPs are recommended to safeguard trees remaining on site during site development. Many of these recommendations are standards of care. All trees with TPZs that are encroached upon should be monitored for distress.

Excavation/Trenching – Root Severance

Due to the nature of excavation and trenching, the greatest concern to tree health and mortality associated with site development is root damage. As long as large lateral roots and sinker roots, which provide tree structural stability, are not removed, most trees should tolerate excavation affecting no more than 25% of the root zone. It should be noted that root systems vary by depth and may spread based on tree species, age, and soil type. Therefore, the full root zone may extend two to three times beyond the TPZ or may be less if the roots are impeded by physical barriers. For trees with TPZs that are expected to be impacted by proposed project activities, the following guidelines are recommended to protect trees during excavation/trenching activities:

- Trench lines/excavation/foundation drilling should avoid the TPZ to the greatest extent feasible. Where appropriate, tunneling should be used to preserve roots two inches in diameter or greater, and wherever possible underground lines should occupy common trenches.
- When root cutting occurs, exposed major roots that are greater than two inches in diameter should not be ripped by construction equipment. Instead, they should be cut cleanly, if possible back to a lateral branching root, and made at right angles to the roots.
- A Certified Arborist should be present if work is proposing to encroach upon or occur within the TPZ and the impacts should be documented.
- Any approved development, including grading or excavation that encroaches into the TPZ should be done using only hand-held tools or supervised by a Certified Arborist.
- Absorbent tarp or heavy cloth fabric should cover new grade cuts and be overlain by compost or woodchip mulch.

Soil Compaction (During and Post-Construction)

Soil compaction imposes a complex set of physical, chemical, and biological constraints on tree growth. Principal components leading to limited growth are the loss of aeration and pore space, poor gas exchange with the atmosphere, lack of available water, and mechanical impedance of root growth. Soil compaction is considered to be the largest single factor responsible for the decline of trees on construction sites. Given the current site characteristic, most of the existing protected trees have not undergone soil compaction. The following guidelines are recommended to protect trees from any excessive soil compaction that may occur due to project activities:

- Staging should be limited to areas outside of TPZs.
- Construction precautions, such as steel traffic plates and fencing, should be employed to protect sensitive root zones.
- Only semi-permeable surfaces should be placed in the TPZs. If feasible, mulch (either organic or inorganic) should be utilized as a cover on trails or roadways instead of hardscape materials such as asphalt.

Changes in Grade

Changes in grade, by the addition or removal of soil (filling or cutting), can be injurious to a tree. Lowering the grade around trees can have immediate and long-term effects. A majority of tree roots are typically located above a depth of four feet, and most of the fine roots active in water and nutrient absorption are in the top 12 inches (CDF 1989b). Natural or preconstruction grade should be maintained within the TPZ.

Alteration of the Water Table/Site Drainage

Based on the topography of the project site, drainage conditions are not anticipated to become an issue during and subsequent to construction. The six individually and/or woodland protected trees to be removed from the east facing slope on the northeast corner of the project site will cause increased flow of surface waters. However development is occurring in these areas, and rainfall from these and other hardscape areas will be collected via storm water drainage systems. Replacement plantings occurring on the south facing slope in the central southern portion of the project site, once established, will decrease erosion and flow of surface waters into the main drainage on site.

Substantial Trimming of Canopy or Roots

Pruning for clearance should be done to prevent equipment from damaging branches. Pruning for equipment clearance anywhere on the project site and regardless of the task (including for geo-technical work) is subject to the County's requirements and the mitigation described in this report.

All above-ground pruning should be in accordance with the Tree Pruning Guidelines (ISA 2017) and/or the ANSI A300 Pruning Standard (ANSI 2017) and should adhere to the most recent edition of ANSI Z133.1. Pruning cuts or damaged bark should be cut clean to allow the wound to heal. No tree seal or paint should be used after pruning. Removal of more than 50% of a tree's crown or foliage in an annual growing season (ANSI 2017) may be considered as removal of said tree.

Mechanical Damage

Inadvertent damage to limbs and branches from project equipment (mechanical damage) may occur if work, including staging and access, is proposed within the TPZ. Protective fencing should be in place, as discussed above. Signs stating "Tree Protection Zone – Keep Out" should be posted on the fence. If damage occurs to limbs and branches, immediate pruning of damaged areas should occur in accordance with the standards discussed above. If damage to the bark or trunk occurs, wound dressings are not recommended. Treatment of said damages may be applied in accordance with the ANSI A300 Management of Trees and Shrubs during Site Planning, Site Development, and Construction (ANSI 2012).

7 Oak Tree Restoration Plan

7.1 Individual Oak Trees

The project requires the removal of six individually protected oak trees, which will be mitigated for at a 2:1 ratio. A total of 12 mitigation trees will be planted on site, as conceptually shown in Figure 9 and summarized in Table 3. The locations were determined using a GIS system that spaced the trees 10 feet apart, on slopes where oaks already exist and on the parcel owned by the project proponent. While the figure shows the trees in uniform spacing, the actual plantings will be off center and will mimic the spacing of the existing surrounding woodland as determined by a restoration biologist or arborist at the time of digging and planting. Per the Ordinance, all replacement trees shall be at least a 15-gallon specimen in size and measure one inch or more in diameter, as measured from one foot above the base. Free-form trees with multiple stems are permissible, but the combined diameter of the two largest stems of such trees shall measure a minimum of one inch in diameter, as measured one foot above the base. Replacement trees shall consist exclusively of indigenous oak trees (coast live oak) and be certified as being grown from a seed source collected in Los Angeles or Ventura Counties. Replacement trees shall be planted in the same general area where the trees were removed, to the extent feasible. Planting should be supervised by a person with expertise in the planting, care, and maintenance of oak trees, in the opinion of the County forester and fire warden. Replacement trees shall be properly cared for and maintained for a period of two years and replaced if mortality occurs within that period.

The following recommendations should be implemented for the planting and monitoring of the oak trees to ensure that the replacement trees have the best chance at establishment.

- Installation of oak trees should be completed in the fall to maximize the potential for successful establishment of the new plantings during the following rainy season.
- Weeds should be removed from the planting locations and within three feet of the locations prior to planting and maintained throughout the monitoring period.
- Gopher baskets that break down over time should be placed in the planting holes to prevent root predation. Support stakes should be installed to prevent trees from falling over.
- Soil amendments (e.g. fertilizer and compost) and mulch should be applied during planting and maintained throughout the monitoring period.
- A temporary drip irrigation system should be installed to water the trees during establishment. Irrigation needs should be based on the amount and timing of winter rains the year they are planted and for two years after.
- All planting should be conducted under the direction of a Certified Arborist, using BMPs such as excavating only the soil needed for planting and retaining native soil on site, ensuring the root ball is placed at the correct grade, and inspecting the trees to ensure they are healthy prior to installation.
- As-built planting plans should be prepared immediately following tree installation in order to track the success of the plantings over the monitoring period. Once plant installation is complete, the mitigation areas will be monitored annually for a period of two years. Monitoring

visits will be conducted in the late spring or early summer of each year, and plant survivability and vigor will be measured for the container trees installed.

- Annual monitoring reports will be prepared and should be submitted by September 1st of each year. If required goals are not achieved at the end of the two-year monitoring period (e.g. due to mortality of replacement or encroached-upon trees), additional plantings or other contingency measures may be required.

7.2 Oak Woodlands

The project requires the removal of 0.62 acre of intact oak woodland. Mitigation, at a 2:1 ratio of canopy cover, requires replacement plantings of 1.24 acres. The 12 proposed replacement trees for individual oaks requiring removal (as discussed above) would create approximately 0.36 acre of woodland on site. As such, an additional 0.90 acre of oak woodland (81 trees) will be planted on site. The total of 93 oaks (1.26 acres) will be spaced in a natural pattern that mimics the surrounding woodland. Canopy cover will develop over time to create a canopy with the density similar to the surrounding oak woodland. Woodland replacement plantings are summarized in Table 3. The replacement plantings would provide the potential to expand/connect to adjacent oak woodlands, and/or the improvement of degraded oak woodlands on site.

The 93 replacement oak trees should be planted on native, undisturbed soil as near to the removed oak woodland as possible and within the project site to provide the maximum connectivity to the remaining woodland. Replacement tree selection (e.g. species and size) and planting (e.g. spacing, irrigation, and weeding) shall be in accordance with the methodology described in Section 7.1. The conceptual locations as seen in Figure 9 were determined by identifying similar slopes and aspects to existing woodlands based on an analysis of a local elevation dataset and aerial imagery. Conceptual locations were also chosen to avoid areas of existing coastal sage scrub, based on aerial imagery. Actual impacts to native coastal sage scrub during mitigation planting should be minimized to the greatest extent feasible (e.g. planting around native shrubs/trees such as toyon [*Heteromeles arbutifolia*] or laurel sumac [*Malosma laurina*] so as to avoid necessitating their removal).

If mitigation plantings cannot be achieved in the area designated in Figure 9 to the satisfaction of the County, then an alternative, additional location should be utilized on the west side of the project site where development is not anticipated. Although it is ideal to plant oak trees near remnant oak woodlands because the area is already sustaining oak tree growth, the west side of the project site may be an acceptable planting location if additional conditions are applied. Coast live oaks prefer mesic sites, generally on north facing slopes; the west side of the site contains a northeast facing slope with a drainage to the east that may provide suitable shade and soil drainage for the replacement oaks (University of California Agriculture and Natural Resources [UCANR] 2019a). Non-native, ornamental trees within the project site may be removed to allow more space for planting the oak trees; however, replacement oaks should be planted at least 15 feet away from the dripline of non-native trees to prevent competing crowns. Understory plants should be carefully selected for native species that naturally grow well with oaks and can tolerate the lack of light under oaks (UCANR 2019b).

The individual trees will be monitored for success separately. The woodland shall be monitored for seven years. The following should be implemented for replacement tree monitoring:

- The woodland should be monitored annually to determine if establishment is successful. Data regarding woodland reestablishment success are not readily available. However, the Los

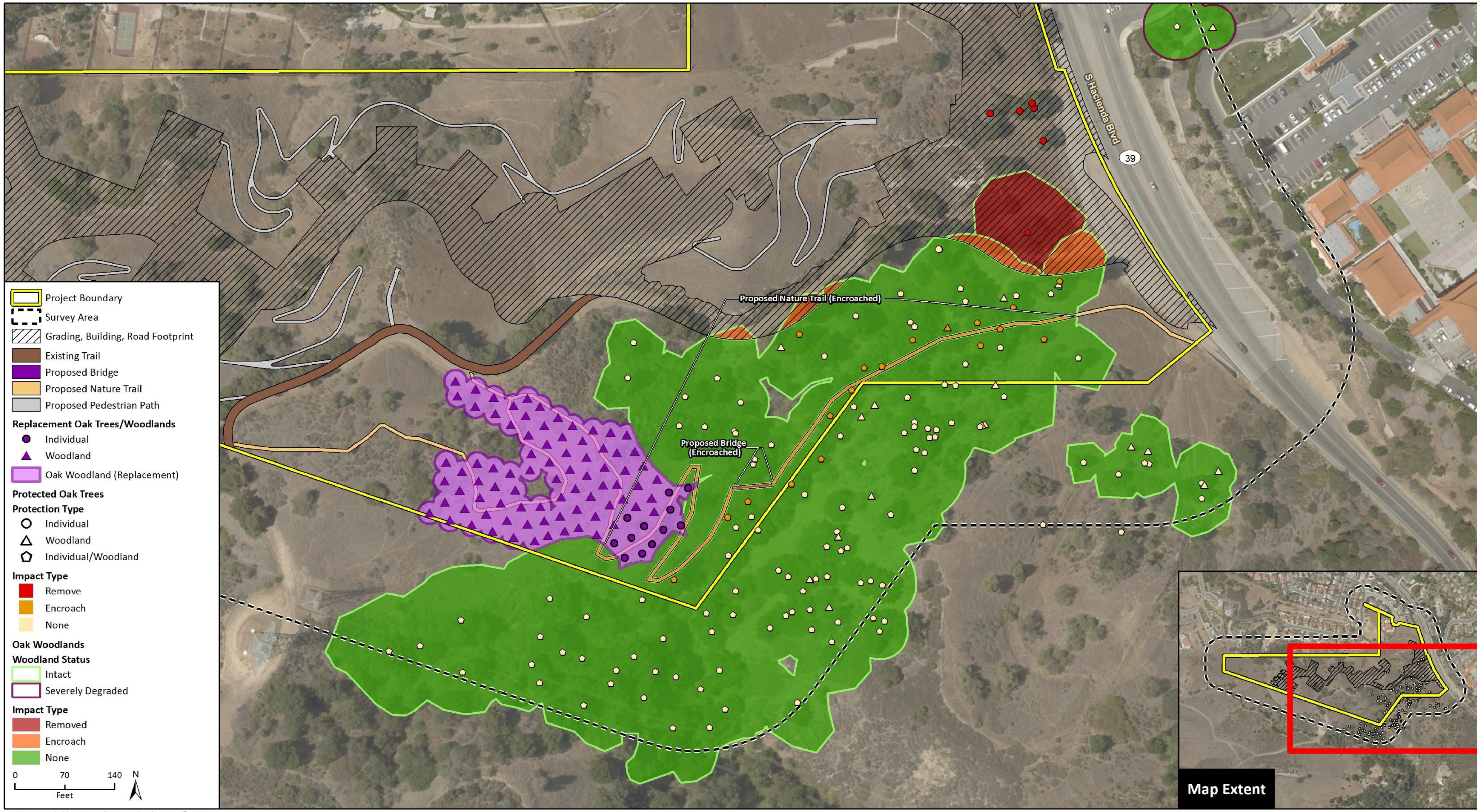
Angeles County Oak Woodlands Conservation Management Plan notes that research has shown that at the highest level of management and a planting density of 200 trees per acre for blue oak woodland, it would take ten years following planting to reach ten percent canopy cover criteria for a woodland under optimal site conditions. The growth rate for coast live oaks depends upon a number of factors (water availability, heat, drought, etc.) but is similar for the two oak species. As such, the goal for the oak woodland for this project should be 7% canopy cover in seven years.

- Canopy cover should be determined by collecting canopy driplines on a GPS device with sub-meter accuracy. The canopies should be mapped and the percentage of canopy cover determined using GIS. Absolute cover should be measured. Absolute cover is the percentage of the ground covered by the vertical projection of the crowns of the oaks (also known as the vertical projection of foliage) as viewed from above. Small openings in the canopy and overlap are excluded.
- Oak trees that do not succeed during the first five years of monitoring should be replaced.
- Annual monitoring reports should be prepared and submitted by November 1st of each year. If required goals are not achieved at the end of the seven-year monitoring period (e.g. due to mortality of replacement or encroached-upon trees), additional plantings or other contingency measures may be required.

Table 3 Replacement Planting Summary

Replacement Type	Acres	# of Trees	Notes
Individual	0.36	12	Also used for woodland mitigation
Woodland	0.90	81	Additional woodland mitigation
Total	1.26	93	Total woodland mitigation

Figure 9 Conceptual Oak Tree Restoration Planting



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Appendix A

Oak Tree Inventory Matrix

Tree ID #	Latitude	Longitude	Tree Species	No. of Trunks[1]	DSH 1 (inches)	DSH 2 (inches)	DSH 3 (inches)	Overall Condi-tion Rating	Height (feet)	Canopy Spread (feet)	Heritage Oak[2]	Protected/ Qualifying Oak[3]	Protection Type[4]	Proposed Impacts[5]
1	33.976272	-117.970388	Coast Live Oak *(Quercus agrifolia)*	3	4.5	4	4	Fair	10	15	No	No	None	None
2	33.976075	-117.969743	Coast Live Oak *(Quercus agrifolia)*	2	1.5	2	–	Good	10	10	No	No	None	Remove
3	**33.976045**	**-117.969746**	**Cork Oak *(Quercus suber)***	**1**	**13**	**–**	**–**	**Fair**	**20**	**20**	**No**	**Yes**	**I**	**Remove**
4	33.975959	-117.969727	Coast Live Oak *(Quercus agrifolia)*	1	7.5	–	–	Good	20	15	No	No	None	Remove
5	33.976081	-117.969624	Coast Live Oak *(Quercus agrifolia)*	1	6	–	–	Good	25	20	No	No	None	Remove
6	33.976069	-117.969623	Coast Live Oak *(Quercus agrifolia)*	1	3.5	–	–	Good	25	15	No	No	None	Remove
7	33.976073	-117.969615	Coast Live Oak *(Quercus agrifolia)*	1	3.5	–	–	Good	20	10	No	No	None	Remove
8	33.976073	-117.969627	Coast Live Oak *(Quercus agrifolia)*	1	3	–	–	Fair	15	10	No	No	None	Remove
9	33.976062	-117.969601	Coast Live Oak *(Quercus agrifolia)*	2	2	1	–	Good	10	10	No	No	None	Remove
10	**33.976054**	**-117.969608**	**Cork Oak *(Quercus suber)***	**1**	**17**	**–**	**–**	**Good**	**3**	**35**	**No**	**Yes**	**I**	**Remove**
11	**33.976065**	**-117.969543**	**Cork Oak *(Quercus suber)***	**1**	**17**	**–**	**–**	**Fair**	**25**	**35**	**No**	**Yes**	**I**	**Remove**
12	**33.976084**	**-117.969551**	**Cork Oak *(Quercus suber)***	**1**	**12**	**–**	**–**	**Fair**	**25**	**30**	**No**	**Yes**	**I**	**Remove**

Tree ID #	Latitude	Longitude	Tree Species	No. of Trunks[1]	DSH 1 (inches)	DSH 2 (inches)	DSH 3 (inches)	Overall Condi-tion Rating	Height (feet)	Canopy Spread (feet)	Heritage Oak[2]	Protected/ Qualifying Oak[3]	Protection Type[4]	Proposed Impacts[5]
13	**33.975939**	**-117.969501**	**Cork Oak *(Quercus suber)***	**1**	**17**	**–**	**–**	**Fair**	**20**	**25**	**No**	**Yes**	**I**	**Remove**
14	**33.975586**	**-117.969571**	**Coast Live Oak *(Quercus agrifolia)***	**1**	**35**	**–**	**–**	**Good**	**30**	**40**	**No**	**Yes**	**I/W**	**Remove**
15	33.976379	-117.968880	Coast Live Oak *(Quercus agrifolia)*	1	12	–	–	Good	15	30	No	Yes	I/W	None
16	33.976376	-117.968715	Coast Live Oak *(Quercus agrifolia)*	1	7.5	-	–	Good	20	20	No	Yes	W	None
17	33.974620	-117.968766	Coast Live Oak *(Quercus agrifolia)*	1	8	–	–	Good	20	20	No	Yes	I/W	None
18	33.974613	-117.968755	Coast Live Oak *(Quercus agrifolia)*	1	6	–	–	Good	20	20	No	Yes	W	None
19	33.974666	-117.968690	Coast Live Oak *(Quercus agrifolia)*	1	6	–	-	Fair	15	20	No	Yes	W	None
20	33.974562	-117.968766	Coast Live Oak *(Quercus agrifolia)*	1	13	–	–	Good	20	25	No	Yes	I/W	None
21	33.974432	-117.969139	Coast Live Oak *(Quercus agrifolia)*	1	8	–	–	Fair	30	30	No	Yes	I/W	None
22	33.974695	-117.969010	Coast Live Oak *(Quercus agrifolia)*	1	12	–	–	Good	25	15	No	Yes	I/W	None
23	33.974698	-117.969030	Coast Live Oak *(Quercus agrifolia)*	1	8	–	–	Good	20	10	No	Yes	I/W	None
24	33.974761	-117.969093	Coast Live Oak *(Quercus agrifolia)*	1	6	–	–	Good	15	15	No	Yes	W	None

Tree ID #	Latitude	Longitude	Tree Species	No. of Trunks[1]	DSH 1 (inches)	DSH 2 (inches)	DSH 3 (inches)	Overall Condi-tion Rating	Height (feet)	Canopy Spread (feet)	Heritage Oak[2]	Protected/ Qualifying Oak[3]	Protection Type[4]	Proposed Impacts[5]
25	33.974702	-117.969105	Coast Live Oak *(Quercus agrifolia)*	2	4	3	–	Good	15	15	No	No	None	None
26	33.974655	-117.969152	Coast Live Oak *(Quercus agrifolia)*	1	8	–	–	Good	25	25	No	Yes	I/W	None
27	33.974700	-117.969313	Coast Live Oak *(Quercus agrifolia)*	1	8	–	–	Good	15	15	No	Yes	I/W	None
28	33.974460	-117.969500	Coast Live Oak *(Quercus agrifolia)*	1	10	–	–	Good	20	20	No	Yes	I/W	None
29	33.975102	-117.969337	Coast Live Oak *(Quercus agrifolia)*	1	13	–	–	Good	20	25	No	Yes	I/W	None
30	**33.975175**	**-117.969496**	**Coast Live Oak *(Quercus agrifolia)***	**1**	**12**	**–**	**–**	**Good**	**25**	**30**	**No**	**Yes**	**I/W**	**Encroach**
31	33.975351	-117.969463	Coast Live Oak *(Quercus agrifolia)*	1	13	–	–	Good	35	30	No	Yes	I/W	None
32	33.975379	-117.969426	Coast Live Oak *(Quercus agrifolia)*	1	10	–	–	Good	40	30	No	Yes	I/W	None
33	33.975386	-117.969428	Coast Live Oak *(Quercus agrifolia)*	1	7	–	–	Fair	35	25	No	Yes	W	None
34	**33.975398**	**-117.969422**	**Coast Live Oak *(Quercus agrifolia)***	**1**	**15**	**–**	**–**	**Good**	**40**	**30**	**No**	**Yes**	**I/W**	**Encroach**
35	33.975343	-117.969623	Coast Live Oak *(Quercus agrifolia)*	1	13	–	–	Good	25	30	No	Yes	I/W	None
36	33.975334	-117.969682	Coast Live Oak *(Quercus agrifolia)*	1	7	–	–	Good	20	15	No	Yes	W	None

Tree ID #	Latitude	Longitude	Tree Species	No. of Trunks[1]	DSH 1 (inches)	DSH 2 (inches)	DSH 3 (inches)	Overall Condi-tion Rating	Height (feet)	Canopy Spread (feet)	Heritage Oak[2]	Protected/ Qualifying Oak[3]	Protection Type[4]	Proposed Impacts[5]
37	**33.975298**	**-117.969638**	**Coast Live Oak *(Quercus agrifolia)***	**1**	**13**	**–**	**–**	**Fair**	**25**	**25**	**No**	**Yes**	**I/W**	**Encroach**
38	**33.975215**	**-117.969698**	**Coast Live Oak *(Quercus agrifolia)***	**1**	**28**	**–**	**–**	**Good**	**30**	**55**	**No**	**Yes**	**I/W**	**Encroach**
39	33.975143	-117.969698	Coast Live Oak *(Quercus agrifolia)*	1	18	–	–	Fair	25	40	No	Yes	I/W	None
40	**33.975151**	**-117.969789**	**Coast Live Oak *(Quercus agrifolia)***	**1**	**8**	**–**	**–**	**Good**	**15**	**10**	**No**	**Yes**	**I/W**	**Encroach**
41	**33.975239**	**-117.969804**	**Coast Live Oak *(Quercus agrifolia)***	**1**	**10**	**–**	**–**	**Good**	**25**	**15**	**No**	**Yes**	**I/W**	**Encroach**
42	33.975080	-117.969860	Coast Live Oak *(Quercus agrifolia)*	1	12	–	–	Good	30	30	No	Yes	I/W	None
43	**33.975220**	**-117.969942**	**Coast Live Oak *(Quercus agrifolia)***	**1**	**6**	**–**	**–**	**Fair**	**20**	**20**	**No**	**Yes**	**W**	**Encroach**
44	**33.975172**	**-117.970103**	**Coast Live Oak *(Quercus agrifolia)***	**1**	**24**	**–**	**–**	**Good**	**40**	**60**	**No**	**Yes**	**I/W**	**Encroach**
45	33.975223	-117.970094	Coast Live Oak *(Quercus agrifolia)*	1	30	–	–	Good	40	50	No	Yes	I/W	None
46	33.975321	-117.969859	Coast Live Oak *(Quercus agrifolia)*	1	38	–	–	Good	50	60	Yes	Yes	I/W	None
47	33.975371	-117.969882	Coast Live Oak *(Quercus agrifolia)*	2	16	11	–	Fair	20	20	No	Yes	I/W	None
48	33.974954	-117.969681	Coast Live Oak *(Quercus agrifolia)*	3	15	10.5	9	Good	25	30	No	Yes	I/W	None

Tree ID #	Latitude	Longitude	Tree Species	No. of Trunks[1]	DSH 1 (inches)	DSH 2 (inches)	DSH 3 (inches)	Overall Condi-tion Rating	Height (feet)	Canopy Spread (feet)	Heritage Oak[2]	Protected/ Qualifying Oak[3]	Protection Type[4]	Proposed Impacts[5]
49	33.974847	-117.969769	Coast Live Oak *(Quercus agrifolia)*	1	6	–	–	Good	15	15	No	Yes	W	None
50	33.974845	-117.969783	Coast Live Oak *(Quercus agrifolia)*	1	6	–	–	Fair	20	15	No	Yes	W	None
51	33.974838	-117.969792	Coast Live Oak *(Quercus agrifolia)*	1	9	–	–	Good	15	15	No	Yes	I/W	None
52	33.974998	-117.969721	Coast Live Oak *(Quercus agrifolia)*	2	5	1	–	Fair	20	12	No	Yes	W	None
53	33.974853	-117.969924	Coast Live Oak *(Quercus agrifolia)*	1	12	–	–	Poor	30	30	No	Yes	I/W	None
54	33.974827	-117.969993	Coast Live Oak *(Quercus agrifolia)*	1	14.5	–	–	Fair	30	35	No	Yes	I/W	None
55	33.974799	-117.969999	Coast Live Oak *(Quercus agrifolia)*	1	10.5	–	–	Fair	30	35	No	Yes	I/W	None
56	33.974797	-117.970026	Coast Live Oak *(Quercus agrifolia)*	3	5	3	6	Poor	25	20	No	Yes	I/W	None
57	33.974831	-117.970033	Coast Live Oak *(Quercus agrifolia)*	1	7.5	8.5	–	Fair	25	20	No	Yes	I/W	None
58	33.974856	-117.970094	Coast Live Oak *(Quercus agrifolia)*	1	12.5	–	–	Fair	20	20	No	Yes	I/W	None
59	33.974838	-117.970096	Coast Live Oak *(Quercus agrifolia)*	3	12	3.5	5	Fair	30	30	No	Yes	I/W	None
60	33.974815	-117.970142	Coast Live Oak *(Quercus agrifolia)*	2	11.5	9	–	Fair	30	35	No	Yes	I/W	None

Tree ID #	Latitude	Longitude	Tree Species	No. of Trunks[1]	DSH 1 (inches)	DSH 2 (inches)	DSH 3 (inches)	Overall Condi-tion Rating	Height (feet)	Canopy Spread (feet)	Heritage Oak[2]	Protected/ Qualifying Oak[3]	Protection Type[4]	Proposed Impacts[5]
61	33.974750	-117.970086	Coast Live Oak *(Quercus agrifolia)*	2	21.5	9	–	Good	35	40	No	Yes	I/W	None
62	33.974737	-117.970049	Coast Live Oak *(Quercus agrifolia)*	1	8	–	–	Fair	15	15	No	Yes	I/W	None
63	33.974670	-117.970094	Coast Live Oak *(Quercus agrifolia)*	1	30	–	–	Good	35	45	No	Yes	I/W	None
64	33.974572	-117.970294	Coast Live Oak *(Quercus agrifolia)*	1	7	–	–	Fair	15	20	No	Yes	W	None
65	33.974499	-117.970204	Coast Live Oak *(Quercus agrifolia)*	1	21	–	–	Fair	25	30	No	Yes	I/W	None
66	33.974528	-117.970429	Coast Live Oak *(Quercus agrifolia)*	1	28	–	–	Good	20	40	No	Yes	I/W	None
67	33.974434	-117.970453	Coast Live Oak *(Quercus agrifolia)*	1	8.5	–	–	Fair	30	30	No	Yes	I/W	None
68	33.974414	-117.970448	Coast Live Oak *(Quercus agrifolia)*	1	6	–	–	Fair	25	15	No	Yes	W	None
69	33.974376	-117.970501	Coast Live Oak *(Quercus agrifolia)*	1	27	–	–	Good	30	40	No	Yes	I/W	None
70	33.974361	-117.970434	Coast Live Oak *(Quercus agrifolia)*	2	9	20	–	Good	30	35	No	Yes	I/W	None
71	33.974372	-117.970406	Coast Live Oak *(Quercus agrifolia)*	2	9	12	–	Fair	20	30	No	Yes	I/W	None
72	33.974261	-117.970499	Coast Live Oak *(Quercus agrifolia)*	2	13.5	12	–	Fair	30	35	No	Yes	I/W	None

Tree ID #	Latitude	Longitude	Tree Species	No. of Trunks[1]	DSH 1 (inches)	DSH 2 (inches)	DSH 3 (inches)	Overall Condi-tion Rating	Height (feet)	Canopy Spread (feet)	Heritage Oak[2]	Protected/ Qualifying Oak[3]	Protection Type[4]	Proposed Impacts[5]
73	33.974253	-117.970550	Coast Live Oak *(Quercus agrifolia)*	1	14.5	–	–	Fair	30	35	No	Yes	I/W	None
74	33.974236	-117.970343	Coast Live Oak *(Quercus agrifolia)*	2	11	24	–	Fair	25	30	No	Yes	I/W	None
75	33.974244	-117.970297	Coast Live Oak *(Quercus agrifolia)*	1	23	–	–	Fair	25	40	No	Yes	I/W	None
76	33.974228	-117.970244	Coast Live Oak *(Quercus agrifolia)*	2	18	16	–	Fair	25	30	No	Yes	I/W	None
77	33.974089	-117.970234	Coast Live Oak *(Quercus agrifolia)*	3	10.5	8	5.5	Fair	25	20	No	Yes	I/W	None
78	33.974050	-117.970256	Coast Live Oak *(Quercus agrifolia)*	1	14	–	–		25	25	No	Yes	I/W	None
79	33.974101	-117.970285	Coast Live Oak *(Quercus agrifolia)*	1	12.5	–	–	Good	30	25	No	Yes	I/W	None
80	33.974143	-117.970489	Coast Live Oak *(Quercus agrifolia)*	1	6	–	–	Good	15	15	No	Yes	W	None
81	33.974086	-117.970448	Coast Live Oak *(Quercus agrifolia)*	1	17	–	–	Fair	30	30	No	Yes	I/W	None
82	33.974057	-117.970570	Coast Live Oak *(Quercus agrifolia)*	2	7.5	14.5	–	Fair	25	30	No	Yes	I/W	None
83	33.974134	-117.970578	Coast Live Oak *(Quercus agrifolia)*	1	12	–	–	Good	20	25	No	Yes	I/W	None
84	33.974063	-117.970763	Coast Live Oak *(Quercus agrifolia)*	3	21	19	12	Fair	25	30	No	Yes	I/W	None

Tree ID #	Latitude	Longitude	Tree Species	No. of Trunks[1]	DSH 1 (inches)	DSH 2 (inches)	DSH 3 (inches)	Overall Condi-tion Rating	Height (feet)	Canopy Spread (feet)	Heritage Oak[2]	Protected/ Qualifying Oak[3]	Protection Type[4]	Proposed Impacts[5]
85	33.974111	-117.970689	Coast Live Oak *(Quercus agrifolia)*	1	19	–	–	Good	25	30	No	Yes	I/W	None
86	33.974125	-117.970660	Coast Live Oak *(Quercus agrifolia)*	1	10	–	–	Fair	20	25	No	Yes	I/W	None
87	33.974205	-117.970610	Coast Live Oak *(Quercus agrifolia)*	1	34	–	–	Fair	25	35	No	Yes	I/W	None
88	33.974250	-117.970579	Coast Live Oak *(Quercus agrifolia)*	1	7	–	–	Fair	20	15	No	Yes	W	None
89	33.974262	-117.970678	Coast Live Oak *(Quercus agrifolia)*	2	14	18.5	–	Good	30	40	No	Yes	I/W	None
90	33.974285	-117.970722	Coast Live Oak *(Quercus agrifolia)*	3	12	8	6	Fair	25	30	No	Yes	I/W	None
91	33.974342	-117.970955	Coast Live Oak *(Quercus agrifolia)*	3	18	10	14	Good	25	35	No	Yes	I/W	None
92	33.974441	-117.970818	Coast Live Oak *(Quercus agrifolia)*	3	10	16	12	Fair	30	45	No	Yes	I/W	None
93	33.974491	-117.970848	Coast Live Oak *(Quercus agrifolia)*	2	13	15.5	–	Fair	40	40	No	Yes	I/W	None
94	33.974450	-117.970919	Coast Live Oak *(Quercus agrifolia)*	3	6	6.5	13	Fair	30	30	No	Yes	I/W	None
95	**33.974490**	**-117.970957**	**Coast Live Oak *(Quercus agrifolia)***	**1**	**26**	**–**	**–**	**Fair**	**45**	**40**	**No**	**Yes**	**I/W**	**Encroach**
96	**33.974550**	**-117.970864**	**Coast Live Oak *(Quercus agrifolia)***	**1**	**37**	**–**	**–**	**Fair**	**45**	**40**	**Yes**	**Yes**	**I/W**	**Encroach**

Tree ID #	Latitude	Longitude	Tree Species	No. of Trunks[1]	DSH 1 (inches)	DSH 2 (inches)	DSH 3 (inches)	Overall Condi-tion Rating	Height (feet)	Canopy Spread (feet)	Heritage Oak[2]	Protected/ Qualifying Oak[3]	Protection Type[4]	Proposed Impacts[5]
97	33.974693	-117.970841	Coast Live Oak *(Quercus agrifolia)*	1	12	–	–	Fair	30	30	No	Yes	I/W	None
98	33.974714	-117.970833	Coast Live Oak *(Quercus agrifolia)*	3	11	8	12	Fair	40	30	No	Yes	I/W	None
99	33.974813	-117.970921	Coast Live Oak *(Quercus agrifolia)*	1	18	–	–	Fair	30	30	No	Yes	I/W	None
100	**33.974617**	**-117.970664**	**Coast Live Oak *(Quercus agrifolia)***	**3**	**15**	**14**	**18**	**Fair**	**30**	**35**	**No**	**Yes**	**I/W**	**Encroach**
101	33.974768	-117.970756	Coast Live Oak *(Quercus agrifolia)*	1	9	–	–	Fair	25	25	No	Yes	I/W	None
102	33.974578	-117.970602	Coast Live Oak *(Quercus agrifolia)*	1	11	–	–	Good	20	25	No	Yes	I/W	None
103	**33.974714**	**-117.970526**	**Coast Live Oak *(Quercus agrifolia)***	**1**	**22**	**–**	**–**	**Good**	**30**	**35**	**No**	**Yes**	**I/W**	**Encroach**
104	33.974788	-117.970646	Coast Live Oak *(Quercus agrifolia)*	2	3	4	–	Good	15	15	No	No	None	None
105	33.974802	-117.970437	Coast Live Oak *(Quercus agrifolia)*	2	19	15	–	Good	25	30	No	Yes	I/W	None
106	**33.974881**	**-117.970484**	**Coast Live Oak *(Quercus agrifolia)***	**3**	**18**	**18**	**18**	**Fair**	**30**	**30**	**No**	**Yes**	**I/W**	**Encroach**
107	33.974876	-117.970340	Coast Live Oak *(Quercus agrifolia)*	1	6	–	–	Good	20	15	No	Yes	W	None
108	33.974914	-117.970374	Coast Live Oak *(Quercus agrifolia)*	1	8	–	–	Good	15	10	No	Yes	I/W	None

Tree ID #	Latitude	Longitude	Tree Species	No. of Trunks[1]	DSH 1 (inches)	DSH 2 (inches)	DSH 3 (inches)	Overall Condi-tion Rating	Height (feet)	Canopy Spread (feet)	Heritage Oak[2]	Protected/ Qualifying Oak[3]	Protection Type[4]	Proposed Impacts[5]
109	**33.974979**	**-117.970386**	**Coast Live Oak *(Quercus agrifolia)***	**1**	**11**	**–**	**–**	**Good**	**25**	**20**	**No**	**Yes**	**I/W**	**Encroach**
110	33.974921	-117.970279	Coast Live Oak *(Quercus agrifolia)*	1	7	–	–	Good	15	15	No	Yes	W	None
111	33.974951	-117.970128	Coast Live Oak *(Quercus agrifolia)*	1	15	–	–	Good	25	20	No	Yes	I/W	None
112	33.975001	-117.969955	Coast Live Oak *(Quercus agrifolia)*	2	18.5	14	–	Good	30	30	No	Yes	I/W	None
113	33.974997	-117.969904	Coast Live Oak *(Quercus agrifolia)*	1	17	–	–	Good	30	30	No	Yes	I/W	None
114	33.975521	-117.969982	Island Oak (Quercus *tomentella)*	3	18	8	15	Good	40	35	No	Yes	I	None
115	33.975242	-117.970115	Coast Live Oak *(Quercus agrifolia)*	1	25	–	–	Good	30	40	No	Yes	I/W	None
116	**33.975070**	**-117.970245**	**Coast Live Oak *(Quercus agrifolia)***	**1**	**14**	**–**	**–**	**Fair**	**25**	**30**	**No**	**Yes**	**I/W**	**Encroach**
117	33.975265	-117.970365	Coast Live Oak *(Quercus agrifolia)*	2	14	15	–	Good	35	30	No	Yes	I/W	None
118	**33.975065**	**-117.970327**	**Coast Live Oak *(Quercus agrifolia)***	**1**	**12**	**–**	**–**	**Good**	**25**	**30**	**No**	**Yes**	**I/W**	**Encroach**
119	33.975110	-117.970510	Coast Live Oak *(Quercus agrifolia)*	1	35	–	–	Good	30	40	No	Yes	I/W	None
120	**33.975194**	**-117.970627**	**Coast Live Oak *(Quercus agrifolia)***	**2**	**14**	**24**	**–**	**Fair**	**30**	**30**	**No**	**Yes**	**I/W**	**Encroach**

Tree ID #	Latitude	Longitude	Tree Species	No. of Trunks[1]	DSH 1 (inches)	DSH 2 (inches)	DSH 3 (inches)	Overall Condi-tion Rating	Height (feet)	Canopy Spread (feet)	Heritage Oak[2]	Protected/ Qualifying Oak[3]	Protection Type[4]	Proposed Impacts[5]
121	33.975144	-117.970712	Coast Live Oak *(Quercus agrifolia)*	1	7	–	–	Good	15	10	No	Yes	W	None
122	33.974933	-117.970899	Coast Live Oak *(Quercus agrifolia)*	1	20	–	–	Good	25	25	No	Yes	I/W	None
123	33.974822	-117.970927	Coast Live Oak *(Quercus agrifolia)*	1	20	–	–	Good	35	30	No	Yes	I/W	None
124	33.975026	-117.971006	Coast Live Oak *(Quercus agrifolia)*	2	21	14	–	Good	45	40	No	Yes	I/W	None
125	33.974838	-117.971065	Coast Live Oak *(Quercus agrifolia)*	1	18	–	–	Good	25	30	No	Yes	I/W	None
126	33.974953	-117.971155	Coast Live Oak *(Quercus agrifolia)*	2	18	14	–	Fair	25	25	No	Yes	I/W	None
127	33.974842	-117.971182	Coast Live Oak *(Quercus agrifolia)*	1	14	–	–	Good	20	25	No	Yes	I/W	None
128	33.975026	-117.971420	Coast Live Oak *(Quercus agrifolia)*	1	10	–	–	Good	20	20	No	Yes	I/W	None
129	33.975163	-117.971393	Coast Live Oak *(Quercus agrifolia)*	1	11	–	–	Good	25	25	No	Yes	I/W	None
130	33.974744	-117.969015	Coast Live Oak *(Quercus agrifolia)*	1	6	–	–	Good	15	20	No	Yes	W	None
131	33.975351	-117.970159	Coast Live Oak *(Quercus agrifolia)*	1	10	–	–	Good	25	25	No	Yes	I/W	None
132	33.974940	-117.970232	Coast Live Oak *(Quercus agrifolia)*	2	3	3	–	Fair	20	15	No	No	None	None

Tree ID #	Latitude	Longitude	Tree Species	No. of Trunks[1]	DSH 1 (inches)	DSH 2 (inches)	DSH 3 (inches)	Overall Condi-tion Rating	Height (feet)	Canopy Spread (feet)	Heritage Oak[2]	Protected/ Qualifying Oak[3]	Protection Type[4]	Proposed Impacts[5]
133	33.975481	-117.969260	Coast Live Oak *(Quercus agrifolia)*	1	4.5	–	–	good	10	5	No	No	None	Remove
134	33.975477	-117.969313	Coast Live Oak *(Quercus agrifolia)*	1	4.5	–	–	good	15	10	No	No	None	Remove
135	33.974264	-117.973047	Coast Live Oak *(Quercus agrifolia)*	3	3	2	2	good	15	10	No	No	None	None
136	33.974009	-117.970477	Coast Live Oak *(Quercus agrifolia)*	1	15	–	–	Good	25	30	No	Yes	I/W	None
137	33.973776	-117.970637	Coast Live Oak *(Quercus agrifolia)*	1	18	–	–	Good	30	35	No	Yes	I/W	None
138	33.974205	-117.970922	Coast Live Oak *(Quercus agrifolia)*	1	12	–	–	Good	20	30	No	Yes	I/W	None
139	33.974114	-117.970934	Coast Live Oak *(Quercus agrifolia)*	1	15	–	–	Good	25	30	No	Yes	I/W	None
140	33.974049	-117.971032	Coast Live Oak *(Quercus agrifolia)*	1	15	–	–	Good	25	30	No	Yes	I/W	None
141	**33.974250**	**-117.971206**	**Coast Live Oak *(Quercus agrifolia)***	**1**	**20**	**–**	**–**	**Good**	**30**	**35**	**No**	**Yes**	**I/W**	**Encroach**
142	33.974173	-117.971354	Coast Live Oak *(Quercus agrifolia)*	1	10	–	–	Good	20	20	No	Yes	I/W	None
143	33.974106	-117.971612	Coast Live Oak *(Quercus agrifolia)*	2	20	16	–	Good	35	50	No	Yes	I/W	None
144	33.974177	-117.971781	Coast Live Oak *(Quercus agrifolia)*	2	20	16	–	Good	35	55	No	Yes	I/W	None

Tree ID #	Latitude	Longitude	Tree Species	No. of Trunks[1]	DSH 1 (inches)	DSH 2 (inches)	DSH 3 (inches)	Overall Condi-tion Rating	Height (feet)	Canopy Spread (feet)	Heritage Oak[2]	Protected/ Qualifying Oak[3]	Protection Type[4]	Proposed Impacts[5]
145	33.974094	-117.972191	Coast Live Oak *(Quercus agrifolia)*	1	36	–	–	Good	40	60	Yes	Yes	I/W	None
146	33.973995	-117.972380	Coast Live Oak *(Quercus agrifolia)*	2	20	18	–	Good	40	55	No	Yes	I/W	None
147	33.973974	-117.972524	Coast Live Oak *(Quercus agrifolia)*	2	20	16	–	Good	35	50	No	Yes	I/W	None
148	33.973893	-117.972183	Coast Live Oak *(Quercus agrifolia)*	2	20	10	–	Good	30	40	No	Yes	I/W	None
149	33.974030	-117.971825	Coast Live Oak *(Quercus agrifolia)*	1	36	–	–	Good	40	60	Yes	Yes	I/W	None
150	33.973852	-117.971827	Coast Live Oak *(Quercus agrifolia)*	1	25	–	–	Good	25	40	No	Yes	I/W	None
151	33.973946	-117.971631	Coast Live Oak *(Quercus agrifolia)*	1	27	–	–	Good	25	45	No	Yes	I/W	None
152	33.973849	-117.971498	Coast Live Oak *(Quercus agrifolia)*	2	20	15	–	Good	30	45	No	Yes	I/W	None
153	33.973954	-117.971391	Coast Live Oak *(Quercus agrifolia)*	2	20	15	–	Good	30	45	No	Yes	I/W	None
154	33.974022	-117.971256	Coast Live Oak *(Quercus agrifolia)*	2	20	16	–	Good	35	50	No	Yes	I/W	None
155	33.973895	-117.971292	Coast Live Oak *(Quercus agrifolia)*	1	15	–	–	Good	25	30	No	Yes	I/W	None
156	33.973795	-117.971346	Coast Live Oak *(Quercus agrifolia)*	2	20	18	–	Good	40	55	No	Yes	I/W	None

Tree ID #	Latitude	Longitude	Tree Species	No. of Trunks[1]	DSH 1 (inches)	DSH 2 (inches)	DSH 3 (inches)	Overall Condi-tion Rating	Height (feet)	Canopy Spread (feet)	Heritage Oak[2]	Protected/ Qualifying Oak[3]	Protection Type[4]	Proposed Impacts[5]
157	33.973874	-117.971198	Coast Live Oak *(Quercus agrifolia)*	2	20	15	–	Good	30	45	No	Yes	I/W	None
158	33.973678	-117.971211	Coast Live Oak *(Quercus agrifolia)*	2	20	16	–	Good	35	50	No	Yes	I/W	None
159	33.973828	-117.971083	Coast Live Oak *(Quercus agrifolia)*	1	15	–	–	Good	25	30	No	Yes	I/W	None
160	33.973900	-117.970996	Coast Live Oak *(Quercus agrifolia)*	1	36	–	–	Good	40	60	Yes	Yes	I/W	None
161	33.973750	-117.970971	Coast Live Oak *(Quercus agrifolia)*	1	20	–	–	Good	30	35	No	Yes	I/W	None
162	33.974120	-117.971057	Coast Live Oak *(Quercus agrifolia)*	1	20	–	–	Good	30	40	No	Yes	I/W	None
163	33.973923	-117.971864	Coast Live Oak *(Quercus agrifolia)*	1	20	–	–	Good	30	35	No	Yes	I/W	None
164	33.973901	-117.971474	Coast Live Oak *(Quercus agrifolia)*	2	20	16	–	Good	35	50	No	Yes	I/W	None
165	33.973971	-117.971721	Coast Live Oak *(Quercus agrifolia)*	1	15	–	–	Good	25	30	No	Yes	I/W	None
166	33.973765	-117.971623	Coast Live Oak *(Quercus agrifolia)*	1	15	–	–	Good	25	30	No	Yes	I/W	None
167	33.973680	-117.971042	Coast Live Oak *(Quercus agrifolia)*	1	15	–	–	Good	25	30	No	Yes	I/W	None

[1] Only the three largest Diameters at Standard Height (DSH) are listed.

[2] Per Los Angeles County (LAC) Oak Tree Ordinance.

Tree ID #	Latitude	Longitude	Tree Species	No. of Trunks[1]	DSH 1 (inches)	DSH 2 (inches)	DSH 3 (inches)	Overall Condi-tion Rating	Height (feet)	Canopy Spread (feet)	Heritage Oak[2]	Protected/ Qualifying Oak[3]	Protection Type[4]	Proposed Impacts[5]

[3] Per LAC Oak Tree Ordinance (Ordinance) and the LAC Oak Woodlands Conservation Management Plan (Woodland Plan).

[4] Individually Protected (I) = Any oak genus greater than eight inches DSH for single trunk or 12 inches for multi trunk (sum of two largest trunks), per Ordinance

Woodland Protected (W) = Native oak genus with largest trunk greater than five inches DSH, per Woodland Plan

Individually and Woodland Protected (I/W) = Meets requirements for both Ordinance and Woodland Plan.

[5] "Remove" = Trunk or more than 50% of the tree protection zone (TPZ [15 feet from trunk or 5 feet from canopy dripline, whichever is greater]) is located within development footprint.

"Encroach" = Less than 50% of TPZ is located within development footprint.

*Entries that are bolded are protected and proposed to be impacted by the project.

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Appendix B

Site Photographs

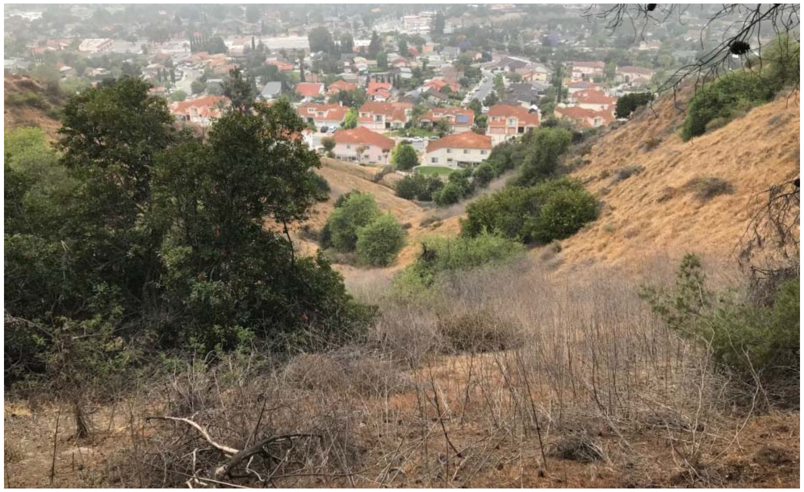
Photograph 1. View of site entrance, facing west. June 20, 2018.

Photograph 2. View of eastern boundary, facing west. June 20, 2018.

Photograph 3. View of eastern portion of site, facing southeast. May 25, 2018.

Photograph 4. View of central northern portion of site, facing north. June 20, 2018.

Photograph 5. View of central portion of site at main drainage, facing south. June 20, 2018.



Photograph 6. View of central northern portion of site, facing north. June 20, 2018.

Photograph 7. View of western portion of site, facing northwest. June 20, 2018.

Photograph 8. View of eastern portion of site, facing east. June 20, 2018.

Appendix C

Jurisdictional Delineation Report

rincon

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December 10, 2019

Ms. Gena Ooi
Project Coordinator
International Buddhist Progress Society
3456 Glenmark Drive
Hacienda Heights, California 91745
Via email: gena.ooi@ibps.org

Subject: Jurisdictional Delineation within the Hsi Lai Monastery Project Site, Hacienda Heights, Los Angeles County, California

Dear Ms. Ooi:

This letter report has been prepared by Rincon Consultants, Inc. (Rincon) to assist the International Buddhist Progress Society with planning of the Hsi Lai Monastery Project (project), and for use by the United States Army Corps of Engineers (USACE) to confirm extent of potential jurisdiction under Section 404 of the Clean Water Act, the Regional Water Quality Control Board (RWQCB), to confirm extent of potential jurisdiction pursuant to Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Control Act, and the California Department of Fish and Wildlife (CDFW) jurisdiction pursuant to California Fish and Game Code (CFGC) Section 1600 *et seq*. This jurisdictional delineation identified five ephemeral non-wetland streams that are potentially subject to agency jurisdiction.

Project Location and Study Area

The project is located on the west side of Hacienda Boulevard and south of the intersection with Glenmark Drive, located within the unincorporated community of Hacienda Heights in Los Angeles County. The site is approximately 1.5 miles south of State Route (SR) 60, and about 5.5 miles east of Interstate (I-) 605, as shown in Attachment B: Figure 1. Specifically, the site is located directly west of the Hsi Lai Buddhist Temple located at 3456 South Glenmark Drive and includes Assessor's Parcel Numbers (APNs) 8240-036-021, 8921-035-020, 8291-035-021, and a small portion of the right-of-way (ROW) for Hacienda Boulevard. The site is located on the U.S. Geological Survey (USGS) 7.5-minute *La Habra, California* quadrangle map in Section 30, Township (T) 2 South (S), Range (R) 10 West (W), as shown in Attachment B: Figure 2. The site is bounded by residential neighborhoods on the north and open land on the west and south. The Study Area for this delineation report includes APNs 8240-036-021, 8291-035-020, and 8291-035-021, plus a small portion of the Hacienda Boulevard ROW, which totals 28.96 acres.

Project Description

The proposed project consists of approximately 143,671 square feet of building area of monastery facilities, primarily oriented east to west, with two-story buildings and a large reception/meditation complex. One existing structure of 5,318 square feet will remain on site. The 17 separate structures consist of meditation halls, classrooms, dormitories, recreational facilities, and multifunctional buildings which are situated along the existing hillsides. The project will also entail the development of one main east to west paved road, pedestrian paths, and a nature trail with a bridge, as well as maintenance of an existing trail.

Methods

This study included a literature review and desktop evaluation of existing aerial imagery and published datasets, followed by a field delineation of potential jurisdictional waters within the Study Area. Data collected in the field were interpreted into maps depicting limits of jurisdiction. Rincon Senior Biologist Michael Cady, accompanied by Senior Biologist Brenna Vredeveld, conducted a field survey on May 25, 2018 and an additional survey was conducted by Mr. Cady on June 20, 2018 for APN 8240-036-021. Rincon Senior Biologist Megan Minter conducted a field survey for APNs 8291-035-020 and 8291-035-021 on July 2, 2019.

Literature Review

Prior to the field surveys, Rincon reviewed available background information and published datasets to understand the environmental setting and context of the Study Area to aid in characterizing the nature and extent of jurisdictional waters potentially occurring on the Study Area. These existing resources included aerial imagery depicting the Study Area (Google Earth 2018), the most recent *La Habra, California* USGS 7.5-minute topographic quadrangle map (2015), and the Web Soil Survey (USDA NRCS 2018a). The *National Hydrography Dataset* (USGS 2018) and the *National Wetlands Inventory* (NWI) (United States Fish and Wildlife Service 2018) were reviewed to determine if any potential wetlands and/or other waters had been previously mapped on or near the Study Area. The *State Soils Data Access Hydric Soils List* (USDA NRCS 2018b) was also reviewed to determine if any soil map unit types mapped on or near the Study Area were classified as hydric. Rincon also reviewed precipitation records for the area to understand typical precipitation patterns and average annual precipitation totals.

Field Delineation

On May 25, 2018, Mr. Cady and Ms. Vredeveld surveyed the approximate 25-acre APN 8240-036-021 on foot to identify potentially jurisdictional aquatic resources, including any potential wetlands and non-wetland waters that exhibit an ordinary high water mark (OHWM) and which may constitute waters of the U.S., waters of the state, and/or riparian resources. During the survey, the biologists noted general site characteristics, documented vegetation, and took representative photographs. Mr. Cady returned to the site on June 20, 2018 to conduct wetland sample points at two locations. Current federal and state methods and guidelines were used to identify and delineate potential jurisdictional areas, as described below.

On July 2, 2019, Ms. Minter conducted an additional survey for the approximate 4-acre area containing APNs 8291-035-020 and 8291-035-021 using the same methods described above. No wetland sample points were conducted during this survey.

Wetlands

During all three surveys, the biologists looked for wetland indicators, specifically, the presence of hydrophytic vegetation, hydric soils and wetland hydrology, according to routine delineation procedure outlined in the *Wetlands Delineation Manual* (USACE 1987) and the guidance in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008a). The USACE *Arid West 2016 Regional Wetland Plant List* was used to determine the wetland status of the examined vegetation by the following indicator status categories: Upland (UPL), Facultative Upland (FACU), Facultative (FAC), Facultative Wetland (FACW), and Obligate Wetland (OBL) (Lichvar et al. 2016; USACE 2016). During the surveys, wetland sample points were conducted in areas identified in the NWI data (USFWS 2018) as having potential to contain one or more wetland indicator.

Non-Wetland Waters of the United States

The lateral limits of potential USACE jurisdiction (i.e., width) for non-wetland waters or "other waters" was determined by the presence of physical characteristics indicative of the OHWM. The OHWM was identified in accordance with the applicable Code of Federal Regulations sections (33 CFR 328.3 and 33 CFR 328.4) and Regulatory Guidance Letter (USACE 2005), as well as in reference to various relevant technical publications including but not limited to *Review of Ordinary High Water Mark Indicators for Delineating Arid Streams in the Southwestern United States* (USACE 2004), *Distribution of Ordinary High Water Mark (OHWM) Indicators and Their Reliability in Identifying the Limits of "Waters of the United States" in Arid Southwestern Channels* (USACE 2006), *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008b), and *Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2010). Additionally, sources of water and connections to downstream Relatively Permanent Waters (RPWs) and Traditionally Navigable Waters (TNWs) were also evaluated.

CDFW Jurisdictional Streambeds

Section 1602 of the California Fish and Game Code requires an entity to notify the CDFW before conducting any activity that would divert obstruct, or substantially alter a streambed. Once notified, the CDFW may require that a Streambed Alteration Agreement (SAA) be executed before the activity may proceed. The CDFW has not defined the term "stream" for the purposes of implementing its regulatory program under Section 1602, and the agency has not promulgated regulations directing how jurisdictional streambeds may be identified, or how their limits should be delineated. Considering this, four sources of information were reviewed and considered in determining the appropriate limits of CDFW jurisdiction within the site, as discussed below. The principles presented in these materials were used to guide the delineation of on-site streams, with consideration given to the relevance (i.e., jurisdiction, applicability) of each source to the project and resources at hand.

- **The plain language of Section 1602 of the California Fish and Game Code** establishes the following general concepts:
  - References "river," "stream," and "lake"
  - References "natural flow"
  - References "bed," "bank," and "channel"
- **Applicable court decisions**, *Rutherford v. State of California* (188 Cal App. 3d 1276 (1987), which interpreted Section 1602's use of "stream" to be as defined in common law. The Court indicated that a "stream" is commonly understood to:
  - Have a source and a terminus
  - Have banks and a channel
  - Convey flow at least periodically, but need not flow continuously and may at times appear outwardly dry
  - Represent the depression between the banks worn by the regular and usual flow of the water

   - Include the area between the opposing banks measured from the foot of the banks from the top of the water at its ordinary stage, including intervening sand bars
   - Include the land that is covered by the water in its ordinary low stage
   - Include lands below the OHWM
- **CDFW regulations** defining "stream" for other purposes, including sport fishing (14 CCR 1.72) and streambed alterations associated with cannabis production (14 CCR 722(c)(21)), which indicate that a stream:
   - Flows at least periodically or intermittently
   - Flows through a bed or channel having banks
   - Supports fish or aquatic life
   - Can be dry for a period of time
   - Includes watercourses where surface or subsurface flow supports or has supported riparian vegetation
- **Guidance documents**, including *A Field Guide to Lake and Streambed Alteration Agreements* (CDFG 1994) and *Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-Scale Solar Power Plants* (Brady and Vyverberg 2013), which suggest the following:
   - A stream may flow perennially or episodically
   - A stream is defined by the course in which water currently flows, or has flowed during the historic hydrologic course regime
   - Width of a stream course can reasonably be identified by physical or biological indicators
   - A stream may have one or more channels (single-thread vs. compound form)
   - Features such as braided channels, low-flow channels, active channels, banks associated with secondary channels, floodplains, islands, and stream-associated vegetation, are interconnected parts of the watercourse
   - Canals, aqueducts, irrigation ditches, and other means of water conveyance can be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife
   - Biologic components of a stream may include aquatic and riparian vegetation, all aquatic animals including fish, amphibians, reptiles, invertebrates, and terrestrial species which derive benefits from the stream system
   - The lateral extent of a stream can be measured in different ways depending on the situation and the type of fish or wildlife resource at risk

The tenets listed above, among others, were applied within the Study Area to determine the limits of on-site streams. Streams were delineated predominately based on the following factors:

- Areas that exhibited evidence of hydrologic activity, such as scour, formation of banks, and/or deposition of sediment or material; and,
- Areas where the vegetation community was adapted to the presence of elevated soil moisture levels (i.e., contained hydrophytic species).

Waters of the State

The limits of "waters of the State," as defined under Section 13050(e) of the California Water Code, were determined to be coterminous with the lateral limits of potential USACE jurisdiction described above. The delineated boundaries include all flow channels within the Study Area.

Data Collection and Processing

Data points representing the top of bank, OHWM, centerline of stream, and other observation points were mapped using a Trimble Geo7X Global Positioning System with sub-meter accuracy and were also plotted by hand on aerial photographs. The data were subsequently transferred to Rincon's geographic information system and used in combination with recent, high resolution aerial photographs and topographic datasets to map the extent of streams in the Study Area. Representative photographs of the streams and surrounding conditions are presented in Attachment C.

Existing Setting

The Study Area is primarily undeveloped open space and no existing structures on APNs 8240-036-021 and 8291-035-020. APN 8291-035-021 contains a single family residential building with access currently off of Lotus Drive, to the north. Draper Road contains paved and unpaved areas and trends east to west through the middle of the Study Area (APN 8240-036-021); it serves as a recreational trail for hikers and equestrians. Other minor dirt access roads and pads are present in the immediate vicinity, associated with an electrical transmission corridor south of the site. Surrounding land uses include residential development to the north and south, Hacienda Boulevard and Hsi Lai Temple to the east and open space to the west. The topography of the site consists of three main hills, with a drainage approximating the boundary on the southeast. Elevation ranges from the lowest of approximately 650 feet above mean sea level (MSL) along the eastern boundary of the site at Hacienda Boulevard, to approximately 865 feet above MSL at the highest point in the south-central portion of the site.

The Study Area is at the southeastern edge of Los Angeles County and the climate is characterized by long, hot, dry summers and short, relatively wet winters. Average high temperatures range from 70 to 89 degrees Fahrenheit (°F) and average low temperatures are 47 to 65°F. The average annual precipitation in the region is 10.91 inches, with most of the rainfall occurring December to March (National Oceanic and Atmospheric Administration 2018).

Hydrology

General hydrology of the Study Area and property was evaluated through review of topographic maps, aerial photos, the National Wetland Inventory (USFWS 2018), and the National Hydrography Dataset (USGS 2018). The Study Area is in the Lower San Jose Creek watershed (Hydrologic Unit Code 180701060502). There is a drainage on the north-central portion of the site which runs along the sides of the canyons and an unnamed intermittent USGS blue line stream that traverses the south eastern portion of the Study Area and flows into culverts adjacent to Hacienda Boulevard. Three other drainages also occur on the Study Area, two along the west edge and one in the northeast-central area that are either entirely contained within the Study Area or the endpoints are immediately adjacent to the Study Area. Based on an examination of aerial imagery and observation during the site visits, the systems appear to experience periodic flash flooding, which is typical for the region and for semi-arid region streams in sandy substrates. Steep hills surrounding the site generate runoff during storm events that collects and flows through the drainage features on the site. Drainage is generally from south-north in the Study Area.

Soils

The USDA NRCS Web Soil Survey (USDA NRCS 2018a) indicates that two non-hydric native soil types occur on the Study Area, including:

- **Zaca-Apollo, warm complex, 20 to 55 percent slopes** (1141), which is a well-drained soil complex composed of clay, sand, and gypsum that is found on hillslopes.
- **Soper-Pachic Haploxerolls-Boades complex, 25 to 75 percent slopes** (1143), which is a well-drained soil complex composed of clay sand and gypsum that is found on hillslopes.

Vegetation

A total of ten vegetation communities and one land cover type were identified in the Study Area and were characterized according to the dominant species that were present and using *A Manual of California Vegetation, Second Edition* when appropriate. These communities are summarized below in Table1 and shown in Attachment B: Figure 3.

Table 1 Summary of Vegetation Communities on the Study Area

Vegetation Community	Acres
Upland Mustards (*Brassica nigra* and other mustards Herbaceous Semi-Natural Alliance)	8.90
Annual Brome Grasslands (*Bromus* (*diandrus*, *hordeaceus*) – *Brachypodium distachyon* Herbaceous Semi-Natural Alliance)	7.02
California Sagebrush Scrub (*Artemisia californica* Shrubland Alliance)	4.08
Coast Live Oak Woodland (*Quercus agrifolia* Woodland Alliance)	2.33
Ornamental Tree Stand (*Pinus halepensis*, *Eucalyptus globulus*, *Schinus molle*, and *Quercus suber* stands)	2.27
Blue Elderberry Stands (*Sambucus nigra* Shrubland Alliance)	1.13
Laurel Sumac Scrub (*Malosma laurina* Shrubland Alliance)	1.16
Purple Needle Grass Grassland (*Nassella pulchra* Herbaceous Alliance)	0.18
Mulefat Thickets (*Baccharis salicifolia* Shrubland Alliance)	0.06
Palmer's Goldenbush Scrub (*Ericameria palmeri* Shrubland Alliance)	0.05
Developed/Road (Asphalt and unpaved road)	1.69
Total	28.87

Field Results and Discussion

A total of five jurisdictional features (labeled Drainages 1 through 5) were identified during the initial survey of APN 8240-036-021 and are shown in Attachment B: Figure 4. All of the features were linear ephemeral drainages that had no flowing or standing water at the time of the surveys. Wetland sample points were conducted for Drainage 1 and Drainage 4 during the June 20, 2018 site visit, since they are identified in the NWI data (USFWS 2018); sampling results for both were negative for supporting wetlands (see Attachment D). No jurisdictional features were identified on APNs 8291-035-020 and 8291-035-021 during the survey conducted on July 2, 2019.

Two drainages (Drainages 1 and 2) have connectivity with downstream features that outlet to the Pacific Ocean. Waters conveyed by these drainages enter an underground stormwater system that is expected to contain connection to the aboveground concrete Hacienda Channel north of the Study Area. The Hacienda Channel then connects to San Jose Creek (concrete channel), approximately three miles to the north of the Study Area. San Jose Creek is a tributary to the San Gabriel River, which flows into the Pacific Ocean, both of which are waters of the U.S. Based upon the physical conditions of the two drainages, and the downstream connectivity, it is determined that these features are under the jurisdiction of the USACE, RWQCB, and CDFW.

Three drainages (Drainages 3, 4, and 5) in the Study Area are isolated, ephemeral linear features that end on the site or near its boundary. Based on their isolation, these features are determined to be non-waters of the U.S. and not under the jurisdiction of the USACE; however, these features have a bed and bank where water flows at some point during the year, and/or have riparian vegetation, and are therefore under the jurisdiction of CDFW and are considered waters of the State under the jurisdiction of the RWQCB.

Drainage 1

Drainage 1 includes approximately 769 linear feet of natural drainage channel that flows south-north through the eastern edge of the Study Area, with an average OHWM of two feet wide and a variable top of bank width. The drainage is shown as a blueline stream on the USGS topographic map that originates approximately 800 hundred feet south of the Study Area and then enters a culvert under Hacienda Boulevard at the Study Area’s eastern edge. The drainage is classified in the NWI data as a riverine system that contains flowing waters only part of the year (USFWS 2018), which was confirmed during the surveys (see Attachment D). The vegetation along the drainage is a dense-canopy, riparian woodland dominated by coast live oak (*Quercus agrifolia*). Other prominent species include blue elderberry (*Sambucus nigra* spp. *caerulea*) and laurel sumac (*Malosma laurina*) in the mid-story, and the understory was dominated by poison oak (*Toxicodendron diversilobum*). CDFW jurisdiction extends to the edges of the coast live oaks that overhang the stream.

Drainage 2

Drainage 2 includes approximately 275 linear feet of natural drainage channel that flows south-north from the center of the Study Area, with an OHWM that averages one foot wide and an average top of bank width of six feet. The drainage originates in the center of the Study Area, drains a small watershed, and ends at a concrete v-ditch that continues to a retention basin and culvert located immediately north of the central portion of the Study Area and adjacent to the residences along Gun Tree Drive. The vegetation in the drainage is dominated by ripgut brome (*Bromus diandrus*) and California sagebrush (*Artemisia californica*).

Drainage 3

Drainage 3 includes approximately 310 linear feet of natural drainage channel that flows west to east in the Study Area, with an OHWM that is less than one foot in width and an average top of bank width of four feet. The drainage originates approximately 200 feet outside the northwest corner of the Study

Area and drains a relatively small watershed. The drainage dissipates shortly north of the Study Area, with any waters sheet flowing into a retention basin located to the north. The vegetation in the drainage is dominated by black mustard (*Brassica nigra*), ripgut brome, castor bean (*Ricinus communis*), ladies' tobacco (*Pseudognaphalium californicum*), and wild radish (*Raphanus sativus*).

Drainage 4

Drainage 4 includes 242 linear feet of natural drainage channel that flows south-north on the Study Area, with a OHWM that is less than one foot in width and a top of bank that enters the site at 15 feet wide and narrows to two feet. The drainage originates immediately south of the Study Area and dissipates shortly north of the Study Area, with any waters sheet flowing into a retention basin located to the north. The drainage is classified in the NWI data as a wetland that supports persistent vegetation typical of temporary flooded wetlands (USFWS 2018). Wetlands were determined to be absent during the surveys (see Attachment D), with no wetland soils present and dominant vegetation that is typically found in uplands, including coyote brush (*Baccharis pilularis*), laurel sumac, and ripgut brome. Mulefat (*Baccharis salicifolia*), which can be found in wetlands and non-wetlands, was present but was not a dominant species.

Drainage 5

Drainage 5 includes 168 linear feet of natural drainage channel that flows south-north on the Study Area, with a OHWM that is less than one foot in width and an average top of bank width of approximately 40 feet. The drainage originates on the northwest-central portion of the Study Area, drains a relatively small watershed, and dissipates just outside the north boundary. The vegetation in the drainage is dominated by California sagebrush, blue elderberry, and ladies' tobacco.

Summary of Jurisdictional Areas

Potentially jurisdictional areas within the Study Area are identified below in Table 2 and shown on Attachment B: Figure 4.

Table 2 USACE, RWQCB, and CDFW Jurisdictional Areas

	Waters of the U.S.[1]			
Feature	Non-wetland Waters of the U.S. (acres/linear feet)	Wetland Waters of the U.S. (acres/linear feet)	Waters of the State[1] (acres/linear feet)	CDFW Jurisdictional Streambed[2] (acres/linear feet)
Drainage 1	0.036 acre/ 774 feet	--/--	0.036 acre/ 774 feet	1.559 acre/ 769 feet
Drainage 2	0.006 acre/ 275 feet	--/--	0.006 acre/ 275 feet	0.078 acre/ 275 feet
Drainage 3	--/--	--/--	0.006 acre/ 251 feet	0.029 acre/ 310 feet
Drainage 4	--/--	--/--	0.005 acre/ 229 feet	0.0100 acre/ 242 feet
Drainage 5	--/--	--/--	0.004 acre/ 165 feet	0.142 acre/ 168 feet
Totals	0.042 acre/ 1,049 feet	--/--	0.057 acre/ 1,694 feet	1.818 acre/ 1,764 feet

[1]Calculated to OHWM

[2]Calculated to top of bank or edge of riparian

Conclusions and Recommendations

Rincon identified two ephemeral drainages believed to be under the jurisdiction of the USACE, RWQCB, and CDFW (Drainages 1 and 2), and three other ephemeral drainages (Drainages 3, 4, and 5) believed to be under the jurisdiction of CDFW and RWQCB. The findings and conclusions presented in this report, including the location and extent of areas subject to regulatory jurisdiction, represent the professional opinion of the consultant biologists. These findings and conclusions should be considered preliminary and at final discretion of the applicable resource agency. Rincon recommends jurisdictional waters identified in this report be considered and avoided during project design, and if avoidance is not feasible, permits should be sought prior to impacting waters.

Sincerely,
Rincon Consultants, Inc.

Matthew South	Michael Cady	Steven J. Hongola
Wildlife Biologist	Senior Biologist	Principal/Senior Ecologist

Attachments

Attachment A References
Attachment B Figures
Attachment C Representative Site Photographs
Attachment D Data Forms

Attachment A References

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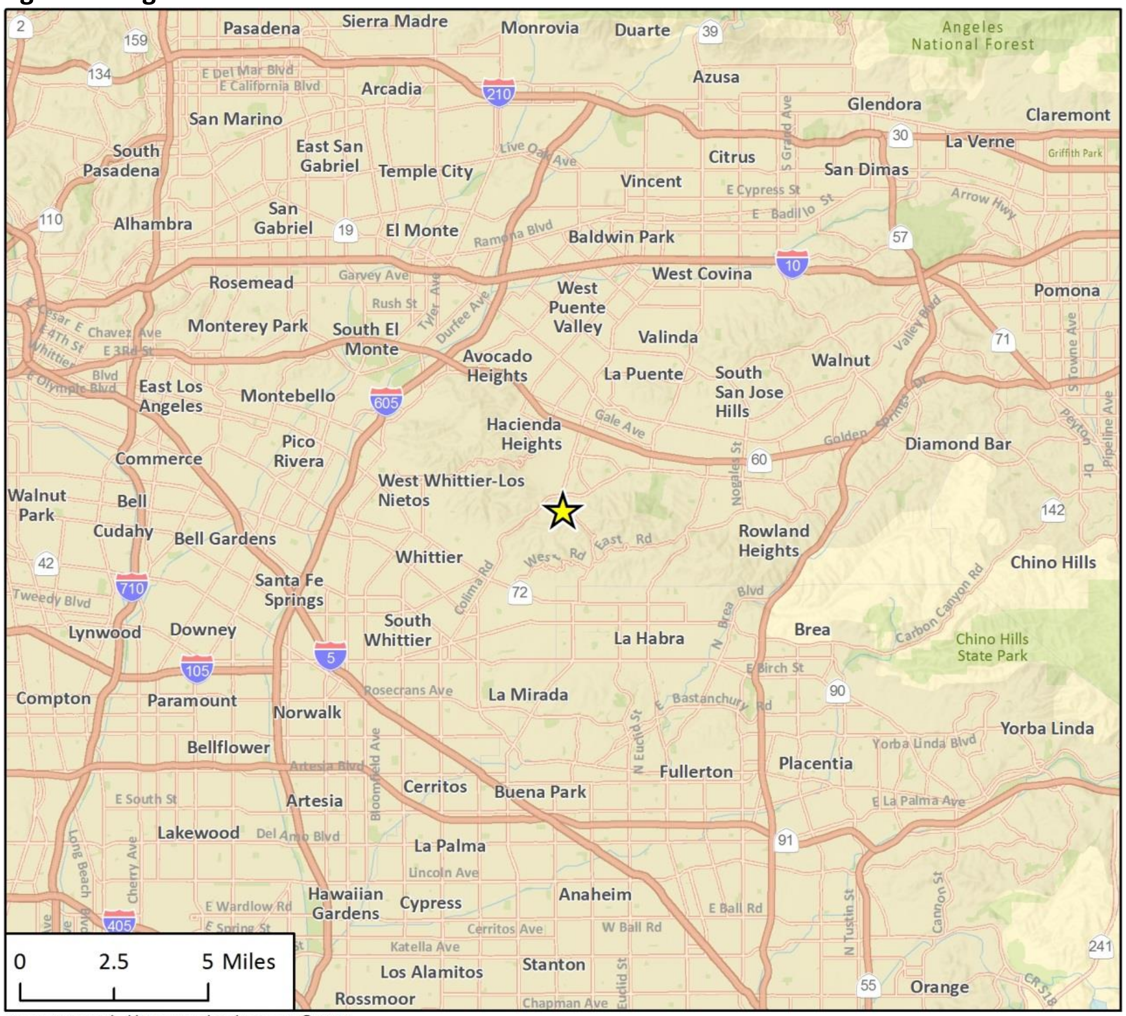
Attachment B Figures

Figure 1. Regional Location



Imagery provided by Esri and its licensors © 2018.

Project Location

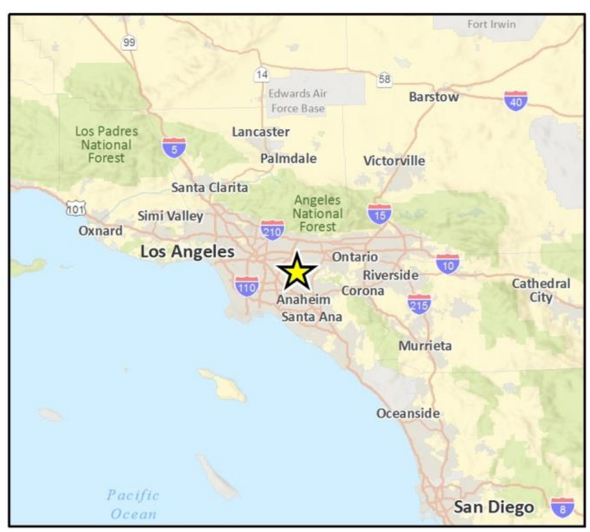
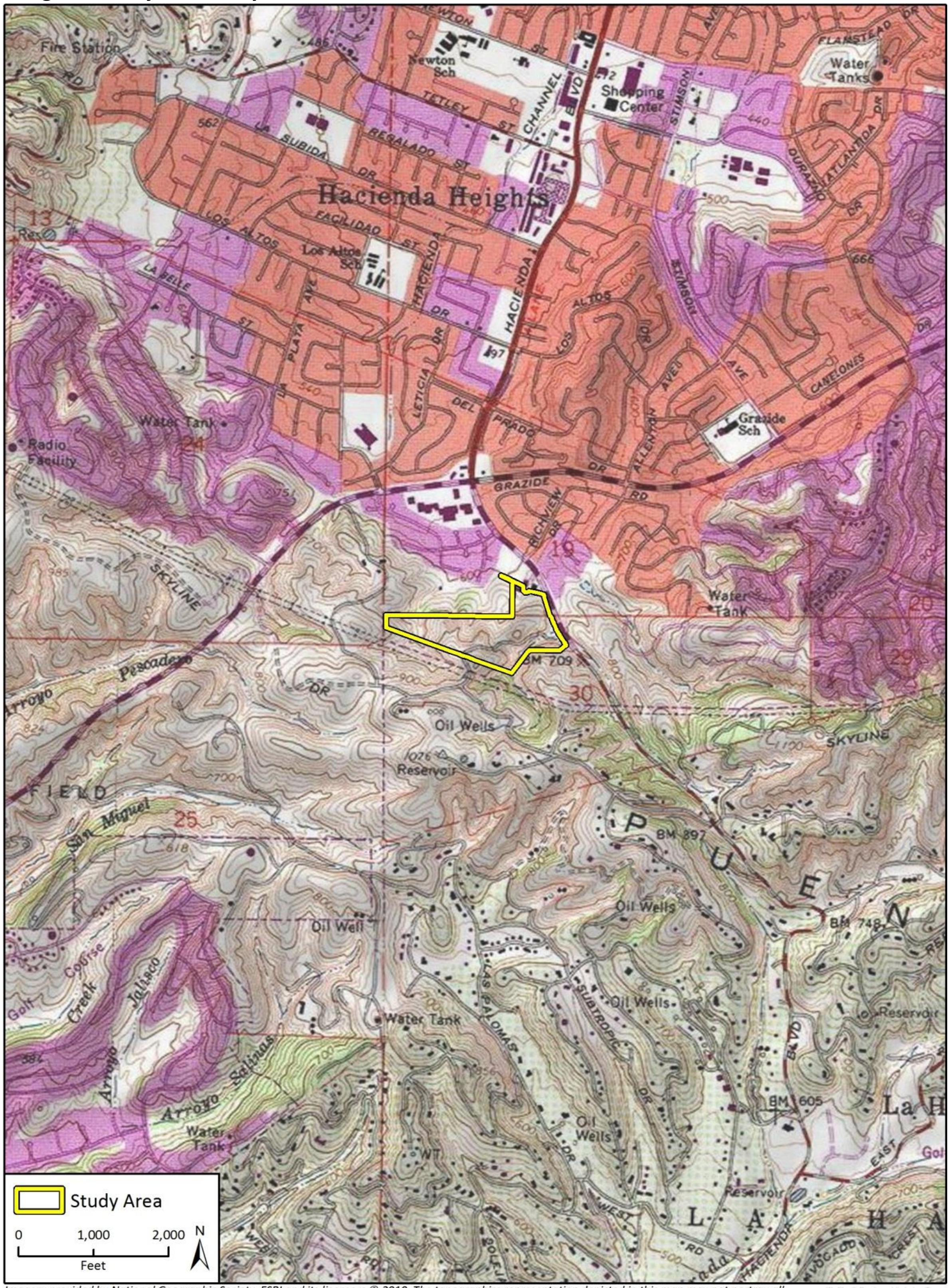
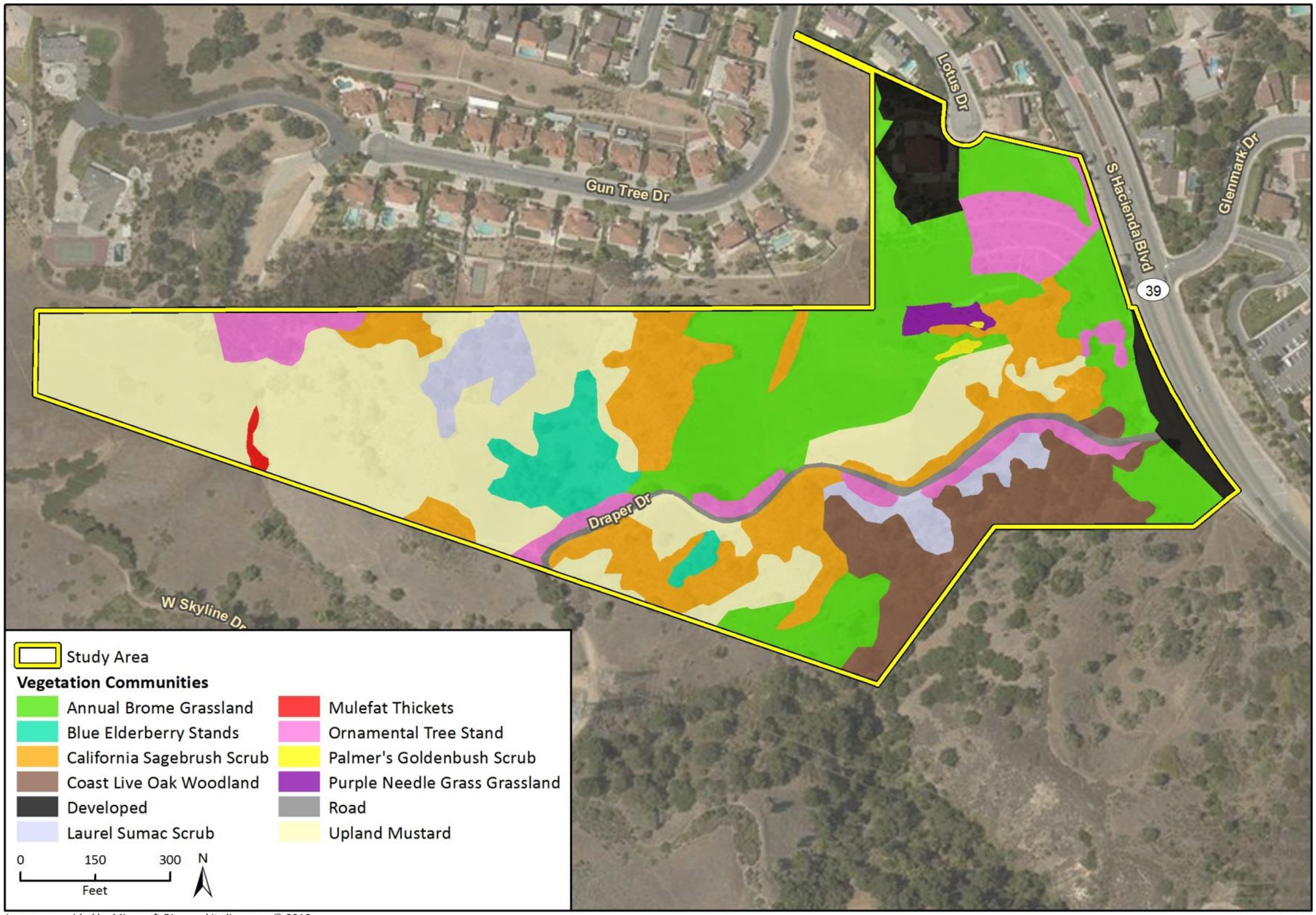


Figure 2. Project Vicinity



Imagery provided by National Geographic Society, ESRI and its licensors © 2019. The topographics representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may have changed since the original topographics map was assembled.

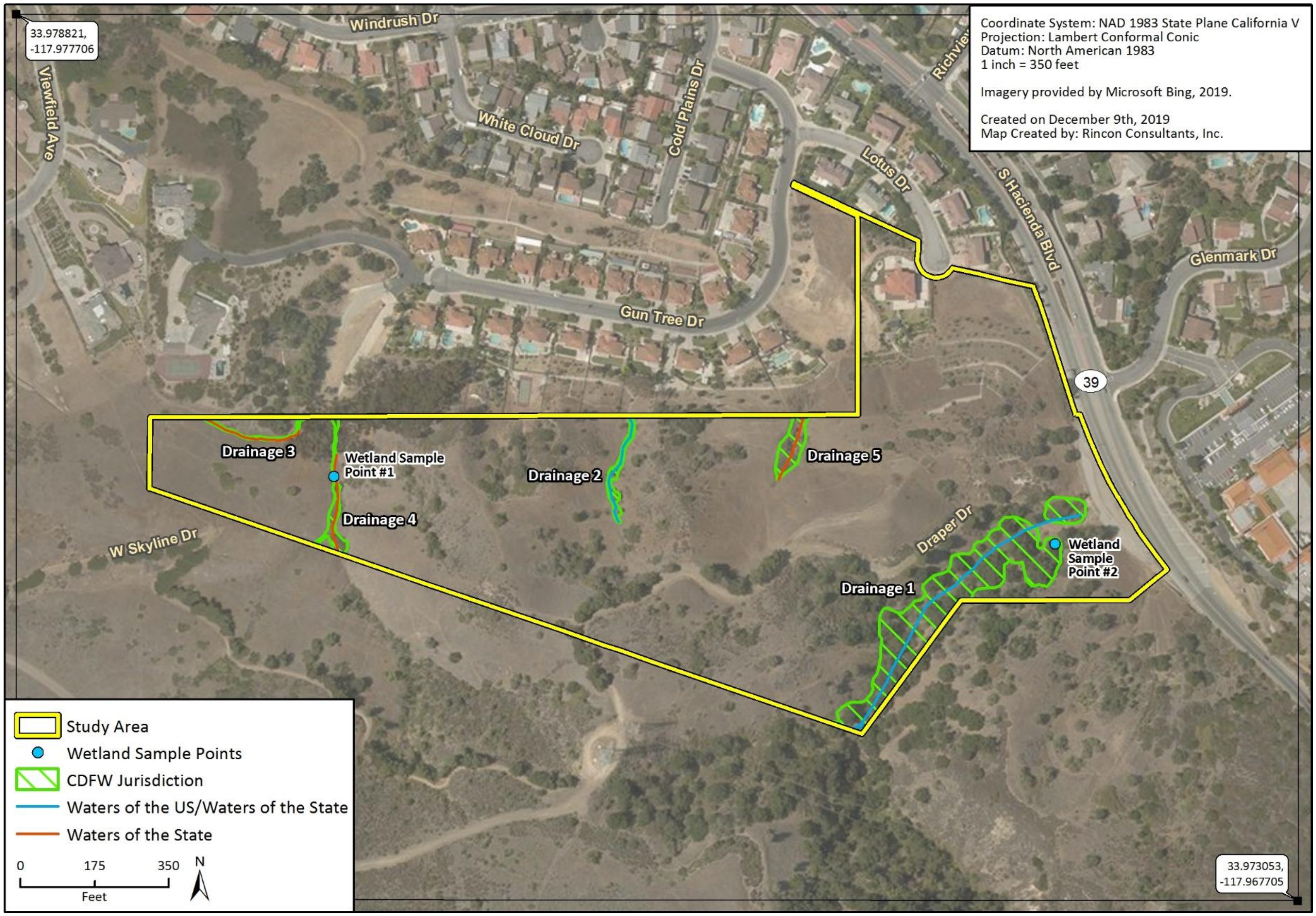
Figure 3. Vegetation Communities



Imagery provided by Microsoft Bing and its licensors © 2019.

JD Fig 3 Vegetation Map

Figure 4. Jurisdictional Delineation



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JDFig 4 Jurisdictional Delineation

Attachment C Representative Site Photographs

Photo 1. Depicts the coast live oak woodland along Drainage 1.

Photo 2. Depicts where Drainage 1 exits the Study Area via a culvert under South Hacienda Boulevard.

Photo 3. Depicts the Drainage 2 main channel on a steep slope.

Photo 4. Depicts a concrete v-ditch at the end of Drainage 2 that directs water into a culvert at the north edge of the Study Area.

Photo 5. Depicts the western edge of Drainage 3.

Photo 6. Depicts areas of Drainage 4 with shrub cover.

Photo 7. Depicts a retention basin north of Drainages 3 and 4 and shows the lack of hydrological connection from the drainages to the basin.

Photo 8. Depicts Drainage 5 and surrounding vegetation.

Attachment D Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Hsi Lai City/County: Los Angeles Sampling Date: 6/20/18

Applicant/Owner: ______ State: CA Sampling Point: #1

Investigator(s): Michael Cady Section, Township, Range: S30/T2S/R10W

Landform (hillslope, terrace, etc.): Drainage bottom Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): Arid West Lat: 33° 58' 32" N Long: 117° 58' 32" Datum: WGS84

Soil Map Unit Name: Zaca-Apollo, warm complex, 20-55% slopes NWI classification: R4SBC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? No Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___ No X	Is the Sampled Area within a Wetland? Yes ___ No X
Hydric Soil Present?	Yes ___ No X	
Wetland Hydrology Present?	Yes ___ No X	

Remarks: Dense Bromus diandrus & Brassica nigra.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
	___ = Total Cover		
Sapling/Shrub Stratum (Plot size: 20' radius)			
1. Baccharis pilularis	10%	No	UPL
2. Rhus integrifolia	5%	No	UPL
3.			
4.			
5.			
	15 = Total Cover		
Herb Stratum (Plot size: 20' radius)			
1. Bromus diandrus	100%	Yes	Upland
2. Brassica nigra	45%	Yes	"
3. Centaurea melitensis	5%	No	"
4. Bromus madritensis rubens	30%	Yes	"
5. Carduus pycnocephalus	5%	No	"
6.			
7.			
8.			
	185 = Total Cover		
Woody Vine Stratum (Plot size: 20' radius)			
1. None			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum — % Cover of Biotic Crust —

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 =
FACW species	0	x 2 =
FAC species	0	x 3 =
FACU species	0	x 4 =
UPL species	200	x 5 = 1000
Column Totals:	200 (A)	1000 (B)

Prevalence Index = B/A = 5.0

Hydrophytic Vegetation Indicators:

No Dominance Test is >50%

No Prevalence Index is ≤3.0[1]

No Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

No Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: —

SOIL

Sampling Point: #1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100	—				Loamy sand	
4-8	10YR 3/2	100	—				"	
8-12	10YR 3/2	100	—				"	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: —

Depth (inches): —

Hydric Soil Present? Yes ______ No X

Remarks: -

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No X Depth (inches): ____________

Water Table Present? Yes ______ No X Depth (inches): ____________

Saturation Present? (includes capillary fringe) Yes ______ No X Depth (inches): ____________

Wetland Hydrology Present? Yes ______ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

—

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Hsi Lai City/County: Los Angeles Sampling Date: #2

Applicant/Owner: ______ State: CA Sampling Point: 6/20/18

Investigator(s): Michael Cady Section, Township, Range: S30/T2S/R10W

Landform (hillslope, terrace, etc.): Drainage in bottom of canyon Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR): Arid West Lat: 33.97547664 Long: -117.96983920 Datum: WGS84

Soil Map Unit Name: Sopher-Pachic Haploxerolls-Boades complex, 25-75% slopes NWI classification: PEM1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? No Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___ No X	Is the Sampled Area within a Wetland?	Yes ___ No X
Hydric Soil Present?	Yes ___ No X		
Wetland Hydrology Present?	Yes ___ No X		

Remarks: In main drainage onsite - coast live oak woodland (riparian).

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus agrifolia	15%	No	UPL
2. NN Pine - Italian Stone Pine	5%	No	UPL
3.			
4.			
	20 = Total Cover		
Sapling/Shrub Stratum (Plot size: 20' radius)			
1. Sambucus nigra	20%	Yes	FACU
2.			
3.			
4.			
5.			
	20 = Total Cover		
Herb Stratum (Plot size: 20' radius)			
1. Bromus diandrus	90%	Yes	UPL
2. Bromus madritensis rubens	50%	Yes	FACU
3. Conium maculatum	15%	NO	FACW
4.			
5.			
6.			
7.			
8.			
	155 = Total Cover		
Woody Vine Stratum (Plot size: 20' radius)			
1. None			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum — % Cover of Biotic Crust —

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 =
FACW species	15	x 2 = 30
FAC species	0	x 3 =
FACU species	70	x 4 = 280
UPL species	110	x 5 = 550
Column Totals:	195 (A)	860 (B)

Prevalence Index = B/A = 4.4

Hydrophytic Vegetation Indicators:

No Dominance Test is >50%

No Prevalence Index is ≤3.0[1]

No Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

No Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: —

SOIL

Sampling Point: ____________

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	95	10YR 5/8				Loamy sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: —

Depth (inches): —

Hydric Soil Present? Yes ______ No X

Remarks: Soil sample dry & unconsolidated

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
X Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No X Depth (inches): ____________
Water Table Present? Yes ______ No X Depth (inches): ____________
Saturation Present? (includes capillary fringe) Yes ______ No X Depth (inches): ____________

Wetland Hydrology Present? Yes ______ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
—

Remarks:
—

Appendix D

Cultural Resources Study

Hsi Lai Monastery Site

Cultural Resources Study

prepared for

International Buddhist Progress Society
3456 Glenmark Drive
Hacienda Heights, California 91745
Contact: Gena Ooi, Project Coordinator
via email: gena.ooi@ibps.org

prepared by

Rincon Consultants, Inc.
250 East 1st Street, Suite 1400
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September 2019

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Executive Summary

The International Buddhist Progress Society retained Rincon Consultants, Inc. (Rincon) to conduct a cultural resources study for the Hsi Lai Monastery Site Project (project). The project is situated on 28.96 acres on the west side of Hacienda Boulevard, adjacent to the Fo Guang Shan Hsi Lai Temple on Glenmark Drive, in the unincorporated community of Hacienda Heights, Los Angeles County, California. The project consists of the development of a monastery retreat center with associated accessory uses, including 17 two-story buildings, the renovation of the existing residential building into a volunteers' dormitory, and a large reception/meditation complex. The project would contain143,671 square feet of programmed space, and would provide 281 parking spaces, at 15866 Draper Road (APNs 8240-036-021, 8291-035-020, and 8291-035-021). Additionally, the project would include the construction of a seven-level subterranean parking garage that would contain 254 parking spaces for monastery guests.

This study was conducted to support environmental analysis under the California Environmental Quality Act (CEQA); it comprises the results of a cultural resources records search, Native American scoping, an intensive pedestrian field survey, and the preparation of this report. The report follows the County of Los Angeles requirements, and has been prepared according to the California Office of Historic Preservation's *Archaeological Resource Management Reports* guidelines.

The results of the record search identified one previously recorded resource, a historic transmission line (P-19-190505), located immediately south of the project site; the resource has been previously determined ineligible for listing on the National Register of Historic Places and the California Register of Historical Resources. No other cultural resources were identified within the project site or in the immediate vicinity. Therefore, Rincon recommends a finding of ***no impact to historical resources*** under CEQA. Notwithstanding, Rincon recommends the following project design features as standard best management practices under existing regulatory requirements in the event of an unanticipated discovery of cultural resources or human remains during project construction.

Unanticipated Discovery of Cultural Resources

If cultural resources are encountered during ground-disturbing activities, work in the immediate area must halt and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (National Park Service [NPS] 1983) should be contacted immediately to evaluate the find. If the discovery proves to be potentially significant, additional work, such as data recovery excavation, Native American consultation, and archaeological monitoring, shall be performed to the satisfaction of the Los Angeles County Department of Regional Planning.

Unanticipated Discovery of Human Remains

If human remains are found, existing regulations outlined in the State of California Health and Safety Code Section 7050.5 state that no further disturbance shall occur until the county coroner has made a determination of origin and disposition pursuant to California Public Resources Code (PRC) Section 5097.98. In the event of an unanticipated discovery of human remains, the county coroner must be notified immediately. If the human remains are determined to be prehistoric, the coroner shall notify the Native American Heritage Commission (NAHC), which will determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of being granted access and provide recommendations as to the treatment of the remains to the landowner.

1 Introduction

The International Buddhist Progress Society retained Rincon Consultants, Inc. (Rincon) to conduct a cultural resources study for the Hsi Lai Monastery Site Project (project) at 15866 Draper Road in Hacienda Heights, Los Angeles County, California. This report documents the tasks Rincon conducted as part of the cultural resource assessment: a records search, Native American scoping, and a pedestrian field survey. The technical report was prepared according to requirements of the County of Los Angeles and the California Office of Historic Preservation’s *Archaeological Resource Management Reports* guidelines. This study has also been conducted in accordance with the requirements of the California Environmental Quality Act (CEQA).

1.1 Project Location and Description

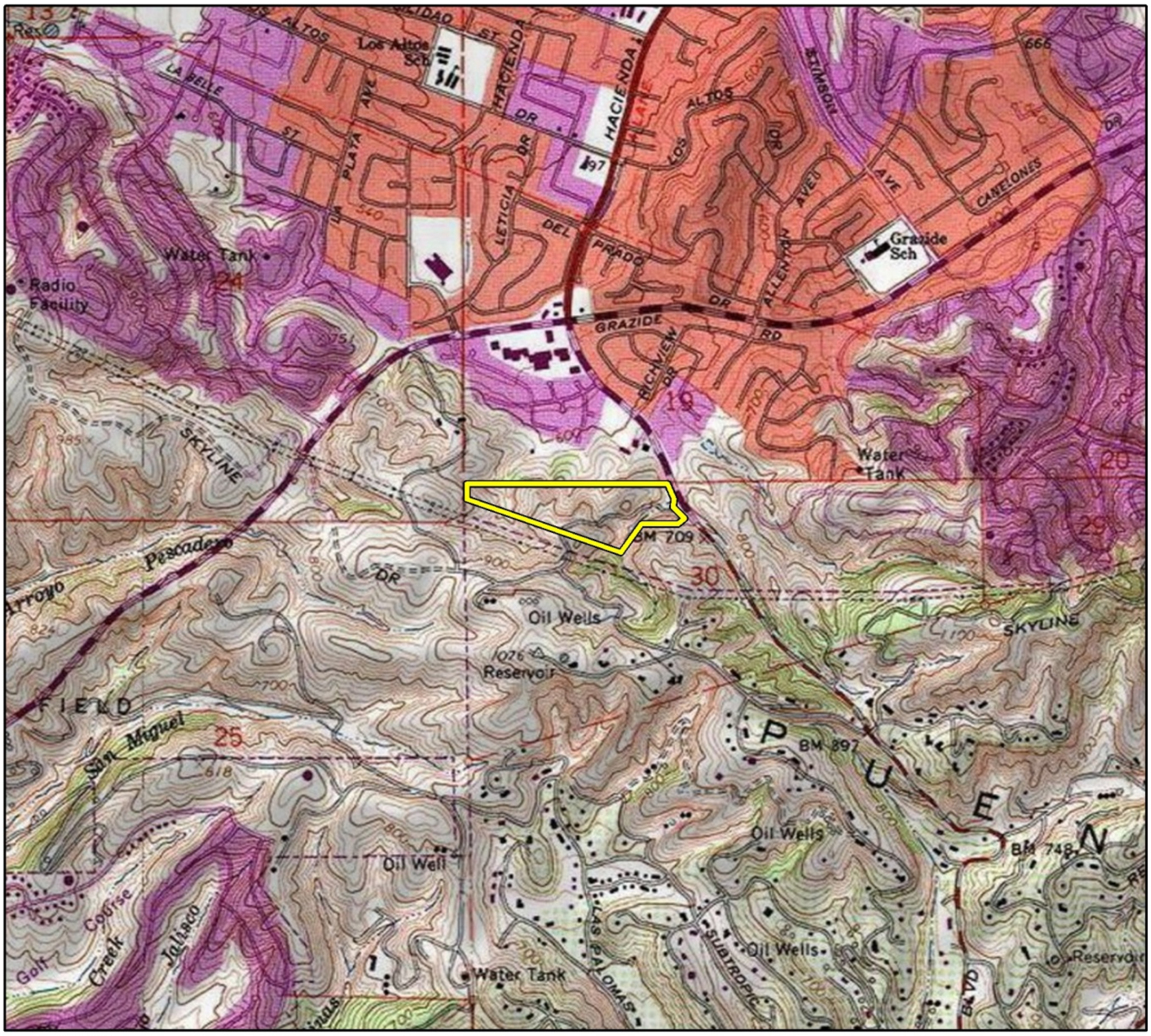
The project proposes the development of vacant property, adjacent to the existing Hsi Lai Temple, on a 28.96-acre parcel located on the westerly side of South Hacienda Boulevard. The project is approximately 1.5 miles south of State Route (SR) 60, and about 5.5 miles east of Interstate 605 (I-605) and is in Township 2S, Range 10W, Section 30, depicted on the United States Geological Survey (USGS) *La Habra, California CA* 7.5-minute quadrangle map (Figure 1). The project site is bounded by residential neighborhoods on the north and open land on the west and south (Figure 2).

The project includes the construction of a monastery retreat center with associated accessory uses, consisting of five different types of buildings; primarily oriented east to west, these include temporary dormitory and living accommodations, multifunction gathering rooms and meditation halls, classrooms and offices for group learning, and communal food areas and dining halls. A total of 17 new two-story buildings, the renovation of the existing 5,318 square foot residential building into a volunteer dormitory, and 281 parking spaces are planned and will be concentrated on the northerly portion of the project site. A larger reception/meditation complex will be located at the entrance to the site for a total built space of 143,671 square feet. Integration with the existing natural features of the project site is an important criterion of project development.

1.2 Personnel

Rincon Senior Archaeologist and Project Manager Tiffany C. Clark, PhD, a Registered Professional Archaeologist (RPA), managed this cultural resources study. Dr. Clark meets the Secretary of the Interior’s Professional Qualifications Standards for prehistoric and historic archaeology (NPS 1983). Archaeologist and Project Manager Tricia Dodds, MA, RPA performed the cultural resources survey and Archaeologist Lindsay Porras, MA, RPA conducted the cultural resources records search and Native American scoping and is the primary author of this report. Geographic Information Systems Analyst Jonathon Schuhrke prepared the figures found in this report. Rincon Project Manager, Sally Schifman, Senior Technical Editor, April Durham, PhD and Principal/Vice President Stephen Svete reviewed this report for quality control.

Figure 1 Project Location

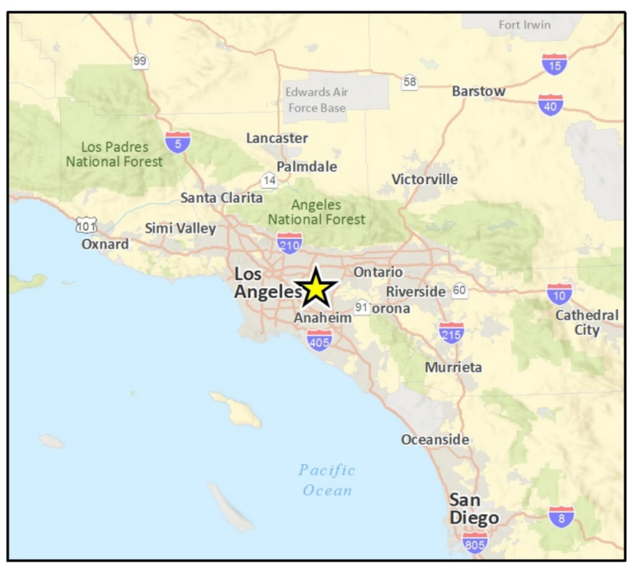


Imagery provided by National Geographic Society, Esri and its licensors © 2018. La Habra Quadrangle. T02S R10W S30. The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may havechanged since the original topographic map was assembled.

Project Location

0 1,000 2,000 Feet

N



CRFig X Proj Locn Map

Figure 2 Project Site

Imagery provided by Microsoft Bing and its licensors © 2019.

Fig 2 Project Site Location Map

2 Regulatory Setting

This section discusses state and local laws, ordinances, regulations, and standards governing cultural resources to which the project should adhere before and during implementation.

2.1 State Regulations

California Environmental Quality Act

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

A resource shall be considered *historically significant* if it meets any of the following criteria:

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

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

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

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

Assembly Bill 52

As of July 1, 2015, California Assembly Bill 52 (AB 52) was enacted and expands CEQA by defining a new resource category called tribal cultural resources (TCR). AB 52 establishes that "a project with an effect that may cause a substantial adverse change in the significance of a TCR is a project that may have a significant effect on the environment" (PRC Section 21084.2). It further states that the lead agency shall establish measures to avoid impacts that would alter the significant characteristics of a TCR, when feasible (PRC Section 21084.3).

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

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

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

2.2 Local

County of Los Angeles

Los Angeles County maintains an active historic preservation program that includes the County's Historic Preservation Ordinance, which establishes criteria and procedures for the designation, preservation, and maintenance of landmarks and historic districts. The ordinance applies only to properties in unincorporated areas of Los Angeles County. Section 22.52.3060 outlines the County's designation criteria for locally eligible landmarks and historic districts:

a. A structure, site, object, tree, landscape, or natural land feature may be designated as a landmark if it is 50 years of age or older and satisfies one or more of the following criteria:
   (1) It is associated with events that have made a significant contribution to the broad patterns of the history of the nation, state, County, or community in which it is located
   (2) It is associated with the lives of persons who are significant in the history of the nation, state, County, or community in which it is located
   (3) It embodies the distinctive characteristics of a type, architectural style, period, or method of construction, or represents the work of an architect, designer, engineer, or builder whose work is of significance to the nation, state, County, or community in which it is located; or possesses artistic values of significance to the nation, state, County, or community in which it is located
   (4) It has yielded, or may be likely to yield, significant and important information regarding the prehistory or history of the nation, state, County, or community in which it is located

(5) It is listed, or has been formally determined eligible by the United States National Park Service for listing, in the National Register of Historic Places, or is listed, or has been formally determined eligible by the State Historical Resources Commission for listing, on the California Register of Historical Resources

(6) If it is a tree, it is one of the largest or oldest trees of the species located in the County

(7) If it is a tree, landscape, or other natural land feature, it has historical significance due to an association with an historic event, person, site, street, or structure, or because it is a defining or significant outstanding feature of a neighborhood

(8) Property less than 50 years of age may be designated as a landmark if it meets one or more of the criteria set forth in subsection A of this Section, and exhibits exceptional importance

(9) The interior space of a property, or other space held open to the general public, including but not limited to a lobby, may be designated as a landmark or included in the landmark designation of a property if the space qualifies for designation as a landmark under subsections A or B of this section

(10) Historic districts. A geographic area, including a noncontiguous grouping of related properties, may be designated as an historic district if all of the following requirements are met:

- More than 50 percent of owners in the proposed district consent to the designation
- The proposed district satisfies one or more of the criteria set forth in subsections A.1 through A.5, inclusive, of this Section
- The proposed district exhibits either a concentration of historic, scenic, or sites containing common character-defining features, which contribute to each other and are unified aesthetically by plan, physical development, or architectural quality; or significant geographical patterns, associated with different eras of settlement and growth, particular transportation modes, or distinctive examples of parks or community planning (Ordinance 2015-0033 Section 3, 2015.)

3 Natural and Cultural Setting

3.1 Natural Setting

The project site is situated at the southeastern edge of Los Angeles County where the climate is characterized by long, hot, dry summers and short, relatively wet winters. The project site is situated in primarily undeveloped open space that ranges in elevation from 660 feet to 865 feet above mean sea level. The soil in the area is a well-drained soil complex composed of clay, sand, and gypsum.

The topography is variable and rugged, consisting of three main hills, a number of rolling hills and steep slopes, and a drainage that traverses the southeast boundary. Both native and non-native vegetation communities are present on the project site and include Upland Mustards (*Brassica nigra* and other mustards), Annual Brome Grasslands (*Bromus* (*diandrus, hordeaceus*), *Brachypodium distachyon*), California Sagebrush Scrub (*Artemisia californica*), Coast Live Oak Woodland (*Quercus agrifolia*), Ornamental Tree Stand (*Pinus halepensis*, *Eucalyptus globulus*, and *Quercus suber* stands), Blue Elderberry Stands (*Sambucus nigra*), Laurel Sumac Scrub (*Malosma laurina*), Purple Needle Grass Grassland (*Nassella pulchra*), and Mulefat Thickets (*Baccharis salicifolia*) (Rincon 2018).

Current land uses in the vicinity of the project site include residential neighborhoods to the north and open land on the west and south. A graded dirt access road bisects the site and connects to graded pads associated with the Southern California Edison (SCE) Company's Mesa-Walnut 220 kilovolt (kV) transmission line immediately south of the southern project boundary.

3.2 Cultural Setting

The cultural setting for the project vicinity is presented broadly in what follows under three overviews: Prehistoric, Ethnographic, and Historic. The Prehistoric and Historic overviews describe human occupation before and after European contact; the Ethnographic Overview provides a synchronic "snapshot" of traditional Native American lifeways as described by European observers prior to assimilative actions.

Prehistoric Context

Numerous chronological sequences have been devised to aid in understanding cultural changes in southern California. Building on early studies and focusing on data synthesis, Wallace (1955, 1978) developed a prehistoric chronology for the southern California coastal region that is still widely used today and is applicable to near-coastal and many inland areas, including the current project site. Four periods are presented in Wallace's prehistoric sequence: Early Man, Milling Stone, Intermediate, and Late Prehistoric. Although Wallace's (1955) synthesis initially lacked chronological precision due to a paucity of absolute dates (Moratto 1984:159), this situation has been alleviated by the availability of thousands of radiocarbon dates that have been obtained by southern California researchers in the last three decades (Byrd and Raab 2007:217). Several revisions have been made to Wallace's (1955) synthesis using radiocarbon dates and projectile point assemblages (e.g., Koerper and Drover 1983; Mason and Peterson 1994; Koerper et al. 2002).

Horizon I- Early Man (ca. 10,000 – 6000 BCE)

When Wallace defined the Horizon I (Early Man) period in the mid-1950s, there was little evidence of human presence on the southern California coast prior to 6000 BCE. Archaeological work in the intervening years has identified numerous pre-8000 BCE sites, both on the mainland coast and the Channel Islands (e.g., Erlandson 1991; Johnson et al. 2002; Moratto 1984; Rick et al. 2001:609). The earliest accepted dates for occupation are from two of the northern Channel Islands, located off the coast of Santa Barbara. On San Miguel Island, Daisy Cave clearly establishes the presence of people in this area about 10,000 years ago (Erlandson 1991:105). On Santa Rosa Island, human remains have been dated from the Arlington Springs site to approximately 13,000 years ago (Johnson et al. 2002).

Recent data from Horizon I sites indicate that the economy was a diverse mixture of hunting and gathering, with a major emphasis on aquatic resources in many coastal areas (e.g., Jones et al. 2002) and on Pleistocene lakeshores in eastern San Diego County (see Moratto 1984:90–92). Although few Clovis-like or Folsom-like fluted points have been found in southern California (e.g., Dillon 2002; Erlandson et al. 1987), it is generally thought that the emphasis on hunting may have been greater during Horizon I than in later periods. Common elements in many sites from this period, for example, include leaf-shaped bifacial projectile points and knives, stemmed or shouldered projectile points, scrapers, engraving tools, and crescents (Wallace 1978:26–27). Subsistence patterns shifted around 6000 BCE coincident with the gradual desiccation associated with the onset of the Altithermal climatic regime, a warm and dry period that lasted for about 3,000 years. After 6000 BCE, a greater emphasis was placed on plant foods and small animals

Horizon II Milling Stone (6000–3000 BCE

The Milling Stone Horizon of Wallace (1955, 1978) and Encinitas Tradition of Warren (1968) (6000 to 3000 BCE) are characterized by subsistence strategies centered on collecting plant foods and small animals. Food procurement activities included hunting small and large terrestrial mammals, sea mammals, and birds; collecting shellfish and other shore species; near-shore fishing with barbs or gorges; the processing of yucca and agave; and the extensive use of seed and plant products (Kowta 1969). The importance of the seed processing is apparent in the dominance of stone grinding implements in contemporary archaeological assemblages, namely milling stones (metates and slabs) and handstones (manos and mullers). Milling stones occur in large numbers for the first time during this period, and are more numerous still near the end of this period. Recent research indicates that Milling Stone Horizon food procurement strategies varied in both time and space, reflecting divergent responses to variable coastal and inland environmental conditions (Byrd and Raab 2007:220).

Milling Stone Horizon sites are common in the southern California coastal region between Santa Barbara and San Diego, and at many inland locations (e.g., Herring 1968; Langenwalter and Brock 1985; Sawyer and Brock 1999; Sutton 1993; True 1958). Wallace (1955, 1978) and Warren (1968) relied on several key coastal sites to characterize the Milling Stone period and Encinitas Tradition, respectively. These include the Oak Grove Complex in the Santa Barbara region, Little Sycamore in southwestern Ventura County, Topanga Canyon in the Santa Monica Mountains, and La Jolla in San Diego County. The well-known Irvine site (CA-ORA-64) has occupation levels dating between ca. 6000 and 4000 BCE (Drover et al. 1983; Macko 1998).

Stone chopping, scraping, and cutting tools made from locally available raw material are abundant in Milling Stone/Encinitas deposits. Less common are projectile points, which are typically large and leaf-shaped, and bone tools such as awls. Items made from shell, including beads, pendants, and abalone dishes, are generally rare. Evidence of weaving or basketry is present at a few sites. Kowta (1969) attributes the presence of numerous scraper-planes in Milling Stone sites to the preparation of agave or yucca for food or fiber. The mortar and pestle, associated with pounding foods such as acorns, were first used during the Milling Stone Horizon (Wallace 1955, 1978; Warren 1968).

Cogged stones and discoidals are diagnostic Milling Stone period artifacts, and most specimens have been found within sites dating between 4000 and 1000 BCE (Moratto 1984:149). The cogged stone is a ground stone object with gear-like teeth on its perimeter. Discoidals are similar to cogged stones, differing primarily in their lack of edge modification. Discoidals are found in the archaeological record subsequent to the introduction of the cogged stone. Cogged stones and discoidals are often purposefully buried, and are found mainly in sites along the coastal drainages from southern Ventura County southward, with a few specimens inland at Cajon Pass, and heavily in Orange County (Dixon 1968:63; Moratto 1984:149). These artifacts are often interpreted as ritual objects (Eberhart 1961:367; Dixon 1968:64–65), although alternative interpretations (such as gaming stones) have also been put forward (e.g., Moriarty and Broms 1971).

Characteristic mortuary practices of the Milling Stone period or Encinitas Tradition include extended and loosely flexed burials, some with red ochre, and few grave goods such as shell beads and milling stones interred beneath cobble or milling stone cairns. “Killed” milling stones, exhibiting holes, may occur in the cairns. Reburials are common in the Los Angeles County area, with north-oriented flexed burials common in Orange and San Diego counties (Wallace 1955, 1978; Warren 1968).

Koerper and Drover (1983) suggest that Milling Stone period sites represent evidence of migratory hunters and gatherers who used marine resources in the winter and inland resources for the remainder of the year. Subsequent research indicates greater sedentism than previously recognized. Evidence of wattle-and-daub structures and walls has been identified at several sites in the San Joaquin Hills and Newport Coast area (Mason et al. 1991, 1992, 1993; Koerper 1995; Strudwick 2005; Sawyer 2006), while numerous early house pits have been discovered on San Clemente Island (Byrd and Raab 2007:221–222). This architectural evidence and seasonality studies suggest semi-permanent residential base camps that were relocated seasonally (de Barros 1996; Koerper et al. 2002; Mason et al. 1997) or permanent villages from which a portion of the population left at certain times of the year to exploit available resources (Cottrell and Del Chario 1981).

Horizon III- Intermediate (3000 BCE – CE 500)

Following the Milling Stone Horizon, Wallace’s Intermediate Horizon and Warren’s Campbell Tradition in Santa Barbara, Ventura, and parts of Los Angeles counties, date from approximately 3000 BCE to CE 500 and are characterized by a shift toward a hunting and maritime subsistence strategy, along with a wider use of plant foods. The Campbell Tradition (Warren 1968) incorporates David B. Rogers’ (1929) Hunting Culture and related expressions along the Santa Barbara coast. In the San Diego region, the Encinitas Tradition (Warren 1968) and the La Jolla Culture (Moriarty 1966; Rogers 1939, 1945) persist with little change during this time.

During the Intermediate Horizon and Campbell Tradition, there was a pronounced trend toward greater adaptation to regional or local resources. For example, an increasing variety and abundance of fish, land mammal, and sea mammal remains are found in sites along the California coast during this period. Related chipped stone tools suitable for hunting are more abundant and diversified, and shell fishhooks become part of the tool kit during this period. Larger knives, a variety of flake scrapers, and drill-like implements are common during this period. Projectile points include large side-notched, stemmed, and lanceolate or leaf-shaped forms. Koerper and Drover (1983) consider

Gypsum Cave and Elko series points, which have a wide distribution in the Great Basin and Mojave deserts between ca. 2000 BCE and CE 500, to be diagnostic of this period. Bone tools, including awls, were more numerous than in the preceding period, and the use of asphaltum adhesive was common.

Mortars and pestles became more common during this period, gradually replacing manos and metates as the dominant milling equipment. Hopper mortars and stone bowls, including steatite vessels, appeared in the tool kit at this time as well. This shift appears to correlate with the diversification in subsistence resources. Many archaeologists believe this change in milling stones signals a shift away from the processing and consuming of hard seed resources to the increasing importance of the acorn (e.g., Glassow et al. 1988; True 1993). It has been argued that mortars and pestles may have been used initially to process roots (e.g., tubers, bulbs, and corms associated with marshland plants), with acorn processing beginning at a later point in prehistory (Glassow 1997:86) and continuing to European contact.

Characteristic mortuary practices during the Intermediate Horizon and Campbell Tradition included fully face-down or face-up flexed burials, oriented toward the north or west (Warren 1968:2–3). Red ochre was used commonly, and abalone shell dishes were found infrequently. Interments sometimes occurred beneath cairns or broken artifacts. Shell, bone, and stone ornaments, including charmstones, were more common than in the preceding Encinitas Tradition. Some later sites include Olivella shell and steatite beads, mortars with flat bases and flaring sides, and a few small points. The broad distribution of steatite from the Channel Islands and obsidian from distant inland regions, among other items, attest to the growth of trade, particularly during the latter part of this period. Recently, Raab and others (Byrd and Raab 2007:220–221) have argued that the distribution of Olivella grooved rectangle beads marks “a discrete sphere of trade and interaction between the Mojave Desert and the southern Channel Islands.”

Horizon IV- Late Prehistoric Horizon (CE 500–Historic Contact)

In the Late Prehistoric Horizon (Wallace 1955; 1978), which lasted from the end of the Intermediate (ca. CE 500) until European contact, there was an increase in the use of plant food resources in addition to an increase in land and sea mammal hunting. There was a concomitant increase in the diversity and complexity of material culture during the Late Prehistoric, demonstrated by more classes of artifacts. The recovery of a greater number of small, finely worked projectile points, usually stemless with convex or concave bases, suggests an increased usage of the bow and arrow rather than the atlatl (spear thrower) and dart for hunting. Other items include steatite cooking vessels and containers, the increased presence of smaller bone and shell circular fishhooks, perforated stones, arrow shaft straighteners made of steatite, a variety of bone tools, and personal ornaments made from shell, bone, and stone. There is also an increased use of asphalt for waterproofing and as an adhesive.

Many Late Prehistoric sites contain beautiful and complex objects of utility, art, and decoration. Ornaments include drilled whole Venus clam (Chione spp.) and drilled abalone (Haliotis spp.). Steatite effigies become more common, with scallop (Pecten spp. and Argopecten spp.) shell rattles common in middens. Mortuary customs are elaborate and include cremation and interment with abundant grave goods. By CE 1000, fired clay smoking pipes and ceramic vessels began to appear at some sites (Drover 1971, 1975; Meighan 1954). The scarcity of pottery in coastal and near-coastal sites implies ceramic technology was not well developed in that area, or that ceramics were obtained by trade with neighboring groups to the south and east. The lack of widespread pottery manufacture is usually attributed to the high quality of tightly woven and watertight basketry that functioned in the same capacity as ceramic vessels.

During this period, there was an increase in population size accompanied by the advent of larger, more permanent villages (Wallace 1955:223). Large populations and, in places, high population densities are characteristic, with some coastal and near-coastal settlements containing as many as 1,500 people. Many of the larger settlements were permanent villages in which people resided year-round. The populations of these villages may have also increased seasonally.

In Warren's (1968) cultural ecological scheme, the period between CE 500 and European contact is divided into three regional patterns. The Chumash Tradition is present mainly in the region of Santa Barbara and Ventura counties; the Takic or Numic Tradition is present in the Los Angeles, Orange, and western Riverside counties region; and the Yuman Tradition is present in the San Diego region. The seemingly abrupt changes in material culture, burial practices, and subsistence focus at the beginning of the Late Prehistoric period are thought to be the result of a migration to the coast of peoples from inland desert regions to the east. In addition to the small triangular and triangular side-notched points similar to those found in the desert regions in the Great Basin and Lower Colorado River, Colorado River pottery and the introduction of cremation in the archaeological record are diagnostic of the Yuman Tradition in the San Diego region. This combination suggests a strong influence from the Colorado Desert region.

In Los Angeles, Orange, and western Riverside counties, similar changes (introduction of cremation, pottery, and small triangular arrow points) are thought to be the result of a Takic migration to the coast from inland desert regions. This Takic or Numic Tradition was formerly referred to as the "Shoshonean wedge" or "Shoshonean intrusion" (Warren 1968). This terminology, used originally to describe a Uto-Aztecan language group, is generally no longer used to avoid confusion with ethnohistoric and modern Shoshonean groups who spoke Numic languages (Heizer 1978:5; Shipley 1978:88, 90). Modern Gabrieliño/Tongva, Juaneño, and Luiseño in this region are considered the descendants of the prehistoric Uto-Aztecan, Takic-speaking populations that settled along the California coast during this period or perhaps somewhat earlier.

3.3 Ethnographic Context

The project site is in an area historically occupied by the Gabrieliño. An ethnographic context for the Gabrieliño follows.

Gabrieliño

The archaeological record indicates that the Gabrieliño arrived in the Los Angeles Basin around 500 BCE. Many contemporary Gabrieliño identify themselves as descendants of the indigenous people living across the plains of the Los Angeles Basin and use the native term Tongva (King 1994). This term is used in the remainder of this section to refer to the pre-contact inhabitants of the Los Angeles Basin and their descendants. Surrounding native groups included the Chumash and Tataviam to the northwest, the Serrano and Cahuilla to the northeast, and the Juaneño and Luiseño to the southeast.

The name "Gabrieliño" denotes those people who were administered by the Spanish from the San Gabriel Mission, which included people from the Gabrieliño area proper as well as other social groups (Bean and Smith 1978:538; Kroeber 1925: Plate 57). Therefore, in the post-Contact period, the name does not necessarily identify a specific ethnic or tribal group. The names by which Native Americans in southern California identified themselves have been lost for the most part.

Tongva lands encompassed the greater Los Angeles Basin and three Channel Islands, San Clemente, San Nicolas, and Santa Catalina. The Tongva established large, permanent villages in the fertile lowlands along rivers and streams, and in sheltered areas along the coast, stretching from the foothills of the San Gabriel Mountains to the Pacific Ocean. A total tribal population has been estimated of at least 5,000 (Bean and Smith 1978:540), but recent ethnohistoric work suggests a number approaching 10,000 (O'Neil 2002). Houses constructed by the Tongva were large, circular, domed structures made of willow poles thatched with tule that could hold up to 50 people (Bean and Smith 1978). Other structures served as sweathouses, menstrual huts, ceremonial enclosures, and probably communal granaries. Cleared fields for races and games, such as lacrosse and pole throwing, were created adjacent to Tongva villages (McCawley 1996:27). Archaeological sites composed of villages with various sized structures have been identified.

The Tongva subsistence economy was centered on gathering and hunting. The surrounding environment was rich and varied, and the tribe exploited mountains, foothills, valleys, deserts, riparian, estuarine, and open and rocky coastal eco-niches. Like that of most native Californians, acorns were the staple food (an established industry by the time of the early Intermediate Period). Acorns were supplemented by the roots, leaves, seeds, and fruits of a wide variety of flora (e.g., islay, cactus, yucca, sages, and agave). Fresh water and saltwater fish, shellfish, birds, reptiles, and insects, as well as large and small mammals, were also consumed (Bean and Smith 1978:546; Kroeber 1925:631–632; McCawley 1996:119–123, 128–131).

A wide variety of tools and implements were used by the Tongva to gather and collect food resources. These included the bow and arrow, traps, nets, blinds, throwing sticks and slings, spears, harpoons, and hooks. Groups residing near the ocean used oceangoing plank canoes and tule balsa canoes for fishing, travel, and trade between the mainland and the Channel Islands (McCawley 1996:7). Tongva people processed food with a variety of tools, including hammerstones and anvils, mortars and pestles, manos and metates, strainers, leaching baskets and bowls, knives, bone saws, and wooden drying racks. Food was consumed from a variety of vessels. Catalina Island steatite was used to make ollas and cooking vessels (Blackburn 1963; Kroeber 1925:629; McCawley 1996:129–138).

At the time of Spanish contact, the basis of Tongva religious life was the Chinigchinich cult, centered on the last of a series of heroic mythological figures. Chinigchinich gave instruction on laws and institutions, and also taught the people how to dance, the primary religious act for this society. He later withdrew into heaven, where he rewarded the faithful and punished those who disobeyed his laws (Kroeber 1925:637–638). The Chinigchinich religion seems to have been relatively new when the Spanish arrived. It was spreading south into the Southern Takic groups even as Christian missions were being built and may represent a mixture of native and Christian belief and practices (McCawley 1996:143–144).

Deceased Tongva were either buried or cremated, with inhumation more common on the Channel Islands and the neighboring mainland coast and cremation predominating on the remainder of the coast and in the interior (Harrington 1942; McCawley 1996:157). Cremation ashes have been found in archaeological contexts buried within stone bowls and in shell dishes (Ashby and Winterbourne 1966:27), as well as scattered among broken ground stone implements. Archaeological data such as these correspond with ethnographic descriptions of an elaborate mourning ceremony that included a wide variety of offerings, including seeds, stone grinding tools, otter skins, baskets, wood tools, shell beads, bone and shell ornaments, and projectile points and knives. Offerings varied with the sex and status of the deceased (Johnston 1962:52–54; McCawley 1996:155–165; Reid 1926:24–25). At the behest of the Spanish missionaries, cremation essentially ceased during the post-Contact period (McCawley 1996:157).

3.4 History

Post-Contact history for the state of California is generally divided into three periods: the Spanish Period (1769–1822), Mexican Period (1822–1848), and American Period (1848–present). Although Spanish, Russian, and British explorers visited the area for brief periods between 1529 and 1769, the Spanish Period in California begins with the establishment in 1769 of a settlement at San Diego and the founding of Mission San Diego de Alcalá, the first of 21 missions constructed between 1769 and 1823. Independence from Spain in 1821 marks the beginning of the Mexican Period, and the signing of the Treaty of Guadalupe Hidalgo in 1848, ending the Mexican-American War, signals the beginning of the American Period when California became a territory of the United States.

Spanish Period (1769–1822)

Spanish explorers made sailing expeditions along the coast of southern California between the mid-1500s and mid-1700s. In search of the legendary Northwest Passage, Juan Rodríquez Cabríllo stopped in 1542 at present-day San Diego Bay. With his crew, Cabríllo explored the shorelines of present Catalina Island as well as San Pedro and Santa Monica Bays. Much of the present California and Oregon coastline was mapped and recorded in the next half-century by Spanish naval officer Sebastián Vizcaíno. Vizcaíno's crew also landed on Santa Catalina Island and at San Pedro and Santa Monica Bays, giving each location its long-standing name. The Spanish crown laid claim to California based on the surveys conducted by Cabríllo and Vizcaíno (Bancroft 1885:96–99, Gumprecht 1999:35).

More than 200 years passed before Spain began the colonization and inland exploration of Alta California. The 1769 overland expedition by Captain Gaspar de Portolá marks the beginning of California's Historic period, occurring just after the King of Spain installed the Franciscan Order to direct religious and colonization matters in assigned territories of the Americas. With a band of 64 soldiers, missionaries, Baja (lower) California Native Americans, and Mexican civilians, Portolá established the Presidio of San Diego, a fortified military outpost, as the first Spanish settlement in Alta California. In July of 1769, while Portolá was exploring southern California, Franciscan Friar Junípero Serra founded Mission San Diego de Alcalá at Presidio Hill, the first of the 21 missions that would be established in Alta California by the Spanish and the Franciscan Order between 1769 and 1823. Mission San Fernando Rey de España is located approximately 7.0 miles east of the project APE and was founded in 1979.

The Portolá expedition first reached the present-day boundaries of Los Angeles in August 1769, thereby becoming the first Europeans to visit the area. Father Crespi named "the campsite by the river Nuestra Señora la Reina de los Angeles de la Porciúncula" or "Our Lady the Queen of the Angels of the Porciúncula." Two years later, Friar Junípero Serra returned to the valley to establish a Catholic mission, the Mission San Gabriel Arcángel, on September 8, 1771 (Kyle 2002:151).

Between 1774 and 1776, a second expedition lead by Juan Bautista de Anza traveled west from Sinaloa across the Arizona and California deserts to enter the coastal valley of southern California. The purpose of the expedition was to establish a mission and presidio on the San Francisco Bay. The trail that was established by Anza became a major land route for Spanish settlers in the late 18th and early 19th centuries.

In 1781, a group of 11 Mexican families traveled from Mission San Gabriel Arcángel to establish a new pueblo called El Pueblo de la Reyna de Los Angeles (The Pueblo of the Queen of the Angels). This settlement consisted of a small group of adobe-brick houses and streets and would eventually be known as the Ciudad de Los Angeles (City of Angels).

Mexican Period (1822–1848)

A major emphasis during the Spanish Period in California was the construction of missions and associated presidios to integrate the Native American population into Christianity and communal enterprise. Incentives were also provided to bring settlers to pueblos or towns, but just three pueblos were established during the Spanish Period, only two of which were successful and remain as California cities (San José and Los Angeles). Several factors kept growth within Alta California to a minimum, including the threat of foreign invasion, political dissatisfaction, and unrest among the indigenous population. After more than a decade of intermittent rebellion and warfare, New Spain (Mexico and the California territory) won independence from Spain in 1821. In 1822, the Mexican legislative body in California ended isolationist policies designed to protect the Spanish monopoly on trade, and decreed California ports open to foreign merchants (Dallas 1955:14).

Extensive land grants were established in the interior during the Mexican Period, in part to increase the population inland from the more settled coastal areas where the Spanish had first concentrated their colonization efforts. Approximately fifty-five land grants were made in the Los Angeles area (Banham 2009). The secularization of the missions following Mexico's independence from Spain resulted in the subdivision of former mission lands and establishment of many additional ranchos. The project site is in the vicinity of Rancho La Puente, once one of the largest Mexican land grants in California. Rancho La Puente received its name from the bridge (*puente*) constructed over the San Jose Creek by Gaspar de Portola's expedition in 1769. Between 1842 and 1845 Governor Juan Alvarado granted the rancho to John Rowland and William Workman who co-owned the 48,790-acre rancho (www.AllAboutHH.org 2018). The rancho spanned the hills of present-day Hacienda Heights to San Bernardino Road in Covina, and extended from the San Gabriel River to Walnut and Pomona (Fulton and McLean 2006)

During the supremacy of the ranchos (1834–1848), landowners focused their efforts largely on the cattle industry and devoted large tracts to grazing. Cattle hides became a primary southern California export, providing a commodity to trade for goods from the east and other areas in the United States and Mexico. The number of nonnative inhabitants increased during this period from the influx of explorers, trappers, and ranchers associated with the land grants. The rising California population contributed to the introduction and rise of diseases foreign to the Native American population and to which they had no immunity.

American Period (1848–Present)

War in 1846 between Mexico and the United States precipitated the Battle of Chino, a clash between resident Californios and Americans in the San Bernardino area. The Mexican-American War ended with the Treaty of Guadalupe Hidalgo in 1848, ushering California into its American Period.

California became a state officially with the Compromise of 1850, which also designated Utah and New Mexico (with present-day Arizona) as United States Territories (Waugh 2003). Horticulture and livestock, primarily cattle, which had served as the currency and staple of the rancho system, continued to dominate the southern California economy through the 1850s. The Gold Rush began in

1848, and with the influx of people seeking gold, cattle were desired not only for their hides but also as a source of meat and tallow. During the 1850s cattle boom, rancho vaqueros drove large herds from southern to northern California to feed that region's burgeoning mining and commercial industries. Cattle were at first driven along major trails or roads such as the Gila Trail or Southern Overland Trail, then were transported by trains when they became available. The cattle boom ended for southern California as neighbor states and territories drove herds to northern California at reduced prices. By the 1890s, operation of the huge ranchos became increasingly difficult, and droughts reduced their productivity severely (Cleland 2005:102–103).

Hacienda Heights and Hsi Lai Temple

Hacienda Heights is an unincorporated suburban community in Los Angeles County, California. Prior to World War II, Hacienda Heights was primarily an agricultural community. The area experienced suburban residential development in the 1940s, which accelerated in growth by the 1950s.

The Buddhist temple of Hsi Lai (Temple) is a prominent landmark in Hacienda Heights. The Temple is the North American Headquarters of the Fo Guang Shan Buddhist order. Master Hsing Yun founded Fo Guang Shan (Buddha's Light Mountain) in 1967 in Taiwan. Fo Guang Shan is a Chinese Mahayana Buddhism monastic order belonging to the Linji Chan School. The Fo Guang Shan Order's foundational ideology is Humanistic Buddhism, which seeks to disseminate Buddhist teachings, unite all Buddhist schools and sects, and encourages inter-religious dialogue through education, cultural outreach, spiritual practice, and service. The Temple is one of the largest Buddhist temples in North America and serves as a spiritual and cultural learning center for Buddhism and Chinese culture (International Buddhist Progress Society 2018).

Construction of the existing Temple began in 1986, with an inauguration ceremony celebrating its completion on November 26, 1988. In 1989, the members of the Temple held the first annual Neighborhood Party providing informational workshops and entertainment to the community (All About HH 2018). The Temple is the site of numerous local and international events including the Chinese Spring Festival, an event that welcomes some 20,000 visitors each day over a two week period (International Buddhist Progress Society 2018).

4 Background Research

4.1 Cultural Resources Records Search

On October 24, 2018, Rincon conducted searches of the California Historical Resources Information System (CHRIS) at the South Central Coastal Information Center (SCCIC) at California State University, Fullerton. The search was conducted to identify all previously recorded cultural resources and previously conducted cultural resources studies within a 0.5-mile radius of the project site. The CHRIS search included a review of the National Register of Historic Places, the CRHR, and the California State Historic Resources Inventory list. The records searches also included a review of all available historical maps and aerial photographs. This report analyzes the results of the records searches and other research conducted for the site.

Rincon's cultural resources records search identified 16 previously conducted cultural resources studies within the 0.5-mile radius of the project site. Three of these prior studies included portions of the project site resulting in 100 percent survey coverage (Appendix A). Table 1 provides a summary of the previously conducted studies located within the record search area.

The cultural resources records search identified one previously recorded cultural resource (P-19-190505) located immediately south of the project site. Constructed in 1956, resource P-19-190505 is the SCE Company Mesa-Walnut 220 kV Transmission Line. Spanning 14.79 miles, this transmission line distributes electricity throughout the San Gabriel Valley from the Mesa substation in Montebello/Monterey Park to the Walnut substation in the City of Industry, California. Resource P-19-190505 consists of approximately 60 steel lattice towners, of the double-circuit type. The resource was previously determined ineligible for listing on the CRHR and NRHP. Table 2 provides a summary of the previously recorded resources within 0.5 mile of the site.

4.2 Native American Scoping

As part of the process of identifying cultural resources for this project, Rincon contacted the NAHC and requested a Sacred Lands File search of the project site and vicinity (Appendix B). As part of this request, Rincon asked the NAHC to provide a list of Native American groups and/or individuals culturally affiliated with the area who may have knowledge of cultural resources within the project site. The NAHC responded on November 13, 2018, stating negative results and included a list of six Native American contacts that may have knowledge of cultural resources in the project vicinity. On November 14, 2018, Rincon prepared and mailed letters to each of the NAHC-listed contacts, requesting that they contact Rincon if they knew of any Native American cultural resources on or immediately adjacent to the project site.

On December 3, 2018, Brandy Salas with the Gabrieleno Band of Mission Indians – Kizh Nation requested from Rincon the lead agency's contact information to begin consultation. Rincon followed up with Ms. Salas and provided the lead agency's contact information.

As of February 6, 2019, Rincon had not received any additional responses from Native American contacts. Rincon assumes that the lead agency, the County of Los Angeles, will conduct AB 52 consultation with interested Native Americans as a separate effort, if applicable.

Table 1 Previous Cultural Resource Studies within 0.5-mile Radius of the Project Site

Report Number	Author(s)	Year	Title	Relationship to Project Site
LA-01029	Douglas, Ronald D.	1977	Report of an Archaeological Survey in the Puente Hills Tentative Tract #30072 the Medicine Lodge Property	**Within**
LA-01054	D'Altroy, Terence N.	1981	Cultural Resources Report Tentative Tract #39961 in Puente Hills, County of Los Angeles, California	Adjacent
LA-01152	Tartaglia, Louis J.	1982	Cultural Resource Survey, Tentative Parcel Map 12895	Outside
LA-04837	Schmidt, James J.	2000	La Habra Deteriorated Pole Project, Los Angeles County	Outside
LA-05476	Romani, Gwendolyn R.	2000	Archaeological Survey Report: Los Angeles-San Diego Fiber Optic Project: Mesa Substation to Chino Hills State Park Segment	Outside
LA-05789	Duke, Curt	2002	Cultural Resource Assessment Cingular Wireless Facility No. Vy 136-01 Los Angeles County, California	Outside
LA-07166	Thal, Sean	2005	South Hacienda/CA-8503a Telecommunications 3137 South Hacienda Blvd., Hacienda Heights, California Los Angeles County	Outside
LA-08248	Fulton, Terri and Deborah McLean	2006	Cultural Resource Assessment for the Puente Hills Landfill Native Habitat Preservation Authority, Los Angeles County, California	**Within**
LA-08716	Bonner, Wayne H.	2006	Cultural Resources Records Search and Site Visit Results for Cingular Candidate Oc-0048-01 (SCE Company Tower-Hacienda Heights), Metropol Drive and Miramar Drive, Hacienda Heights, Los Angeles County, California	Outside
LA-09705	Anonymous, Pacific Legacy, Inc.	2007	Cultural Resources Inventory of the SCE Company Tehachapi Renewable Transmission Project, Kern, Los Angeles and San Bernardino Counties, California. ARR #05-01-01046	Adjacent
LA-10175	Unknown, Applied Earthworks, Aspen Environmental Group	2009	Confidential Cultural Resources Specialist Report for the Tehachapi Transmission Project	Adjacent
LA-11816	Jackson, Thomas	2010	TRTP Negative Archaeological Survey Report, Segment 8 Chino Hills (Phase I) Geotech Bore Holes	**Within**
LA-11984	Jackson, Thomas	2010	TRTP Cultural Resources Survey Report with Negative Findings, Segment 8 Transmission Line Chino Hills	Outside
LA-11988	Schneider, Tsim	2010	TRTP Cultural Resources Survey Report with Negative Findings, Segment 8 West (Phase 4) Supplemental Survey #6	Outside
LA-12552	Holm, Lisa and John Holson	2011	Supplemental Archaeological Survey Report, Tehachapi Renewable Transmission Project Segment 8 East (Phases 2 and 3) and West (Phase 4), Los Angeles and San Bernardino Counties, California	Outside

Report Number	Author(s)	Year	Title	Relationship to Project Site
LA-12928	Holm, Lisa and John Holson	2011	Supplemental Archaeological Survey Report, Tehachapi Renewable Transmission Project Segment 8 East (Phases 2 and 3) and West (Phase 4), Los Angeles and San Bernardino Counties, California	Adjacent

Source: SCCIC 2018

Table 2 Previously Recorded Resources within 0.5- Mile Radius of Project Site

Primary Number	Trinomial	Resource Type	Description	Recorder(s) and Year(s)	NRHP/ CRHR Status	Relationship to APE
P-19-190505	N/A	Historic	Object; Engineering structure; SCE Company's Mesa-Walnut 220 kV Transmission Line	2010 (Tinsley Becker, Wendy L., Urbana Preservation & Planning)	California Historical Resource Status Code 6Z: Found ineligible for National Register, California Register, or local designation through survey evaluation	Adjacent

Source: SCCIC 2018

4.3 Historical Imagery Review

A review of historical aerial photographs (NETRonline 2018) of the project site was conducted on November 16, 2018. The earliest aerial available from this source was taken in 1952 and revealed that the project site and vicinity were undeveloped. Nearby developments during this time included Hacienda Boulevard to the east and agricultural fields to the north of the project site. By 1963, an east-west road is seen in the project site, extending from Hacienda Boulevard to rural residential developments south of the site. The transmission line south of the project site was visible by 1980 and ongoing residential development to the north and south of the site was apparent from 1963 to 2009. Apart from the east-west road, the project site remains undeveloped, with vegetation prominent in the southeast portion and along drainages.

On-line maps of the Juan Bautista de Anza Expedition were also examined as part of the historical imagery review (NPS 2019). Results of this assessment indicate that a portion of the Juan Bautista de Anza National Historic Trail, which was designated as a National Historic Trail in 1990, intersects the project site. Now in use as a recreational trail, the route follows the above-mentioned east-west running road across the project site. Although the recreational trail roughly approximates the route taken by the Anza Expedition in 1774-1776, the on-line NPS (2019) maps suggest that the actual historic corridor associated with the expedition lies more than five miles north of the project site. Based on these findings, it is unlikely that any cultural remains associated with the Anza Expedition would be present in the project site.

5 Field Survey

5.1 Methods

On November 9, 2018, Rincon Archaeologist Tricia Dodds, MA, RPA, conducted a pedestrian field survey of the project site (Figure 2). The survey was conducted by walking a series of east-west transects at approximately 10-meter intervals where terrain permitted. During the survey, Ms. Dodds examined all exposed ground surface for artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools, ceramics, fire-affected rock), ecofacts (marine shell and bone), soil discolorations that might indicate the presence of cultural midden, soil depressions, and features indicative of the former presence of structures of buildings (e.g., standing exterior walls, postholes, foundations) or historic debris (e.g., metal, glass, ceramics). Ground disturbances, such as burrows and road cuts, were inspected visually. Field notes of survey conditions and observations were recorded using Rincon field forms and a digital camera. Copies of the original field notes and photographs are maintained at the Rincon Los Angeles office.

5.2 Results

The project site consists of undeveloped rolling hills, a drainage in in the western portion, and an access road (Draper Road) that originates at Hacienda Boulevard and traverses the site in an east-to-west direction. The survey area is characterized by steep slopes and dense native and non-native vegetation communities, including California Sagebrush Scrub Coast Live Oak Woodland and Laurel Sumac Scrub, among others. Ground visibility throughout the project site ranged from poor to excellent (approximately 10 to 100 percent visibility). Excellent visibility occurred along Draper Road, on several graded access roads, and along walking paths. Impassable areas of dense vegetation and steep hillsides were encountered in the southeastern portion of the project site and were inspected from the roadways and existing walking paths. Exposed soils consisted of semi-compact and dry, light brown, clayey silt with pebbles and granitic rock inclusion.

No prehistoric or historical period cultural resources were identified at the project site. The previously recorded historical transmission line (P-19-190505) was visible from hilltops and the southern portion of the project site (Figure 3). Disturbances in the project site include several graded access roads and Draper Road (Figure 4). A culvert is located near the eastern boundary and extends beneath Hacienda Boulevard. Modern refuse was observed throughout the project site, including glass, tires, and mattress springs.

Figure 3 Overview of Survey Area, P-19-190505 Visible, Facing East

Figure 4 Access Roads in the Project Site, View Northeast

6 Findings and Recommendations

The results of the cultural resources records searches, Native American scoping, and field survey did not identify any prehistoric or historic cultural resources within the project site. The CHRIS search identified one previously recorded resource (P-19-190505) located immediately south of the project site. As the resource was previously determined to be ineligible for listing on the NRHP and CRHR, it is not considered a historical resource under CEQA. Results from the Sacred Lands File search submitted to the NAHC did not indicate any known resources in the vicinity of the project site. A review of historical aerial photographs revealed that the project site is largely undeveloped with the exception of Draper Road and several graded access roads (NETRonline 2018). No prehistoric or historical period cultural resources were observed during the pedestrian survey of the project site.

Therefore, Rincon recommends a finding of ***no impact to historical resources*** under CEQA. Notwithstanding, Rincon recommends the following project design features under existing regulatory requirements as a standard best management practice in the event of an unanticipated discovery of cultural resources or human remains during project construction.

6.1 Unanticipated Discovery of Cultural Resources

If cultural resources are encountered during ground-disturbing activities, work in the immediate area must halt and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (NPS 1983) should be contacted immediately to evaluate the find. If the discovery proves to be potentially significant, additional work, such as data recovery excavation, Native American consultation, and archaeological monitoring, shall be performed to the satisfaction of the Los Angeles County Department of Regional Planning.

6.2 Unanticipated Discovery of Human Remains

If human remains are found, existing regulations outlined in the State of California Health and Safety Code Section 7050.5 state that no further disturbance shall occur until the county coroner has made a determination of origin and disposition pursuant to California Public Resources Code (PRC) Section 5097.98. In the event of an unanticipated discovery of human remains, the county coroner must be notified immediately. If the human remains are determined to be prehistoric, the coroner will notify the NAHC, which will determine and notify an MLD. The MLD shall complete the inspection of the site within 48 hours of being granted access and provide recommendations as to the treatment of the remains to the landowner.

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Appendix A

Confidential Records Search Summary

Appendix B

Native American Scoping

Appendix E

Paleontological Resources Technical Report

Hsi Lai Monastery Site

Paleontological Resources Assessment

prepared for

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Executive Summary

The International Buddhist Progress Society retained Rincon Consultants, Inc. (Rincon) to conduct a paleontological resources assessment for the Hsi Lai Monastery Site Project (project) at 15866 Draper Road in the Hacienda Heights neighborhood of unincorporated Los Angeles County, California. This study has been prepared in conformance with the California Environmental Quality Act (CEQA) and includes a records search, literature review, and paleontological sensitivity assessment consistent with the professional standards of the Society of Vertebrate Paleontology (SVP 2010). The purpose of the literature review and records search was to identify the geologic unit(s) underlying the project site and to determine whether previously recorded paleontological localities occur either within the project boundaries or elsewhere in the same geologic unit elsewhere. The museum records search was followed by a field survey. During the survey, the project site was visually inspected for fossils and geologic exposures were evaluated for their potential to contain preserved fossil material at the subsurface. Using the results of the literature review, field survey, and records search, the paleontological resource potential of the project site was determined in accordance with the 2010 SVP guidelines.

Results of Investigation

Published geologic mapping indicates that the project site is underlain by the Miocene Puente Formation, Quaternary older alluvium, and Quaternary younger alluvium. A records search for paleontological locality data within the project site and the vicinity was obtained from the Natural History Museum of Los Angeles County and online records were reviewed at the University of California's Museum of Paleontology. According to the record searches, no vertebrate fossil localities have been previously recorded directly in the project site boundary; however, multiple vertebrate fossil localities have been previously recorded nearby within the Puente Formation and deposits of Quaternary older alluvium. These localities yielded scientifically significant fossilized specimens of large terrestrial mammals, rodents, and reptiles. Based on this assessment, the project site is determined to have a ***high to low potential for paleontological resource*****s** and the likelihood of impacting scientifically significant vertebrate fossils as a result of project construction is high to low.

Recommendations

Rincon recommends adoption of a mitigation measure requiring that a qualified paleontologist be retained to develop and implement a Paleontological Resources Mitigation Plan (PRMP) during project construction in areas of high paleontological sensitivity. This PRMP would include specific protocols regarding paleontological monitoring procedures; communication protocols to be followed in the event that an unanticipated fossil discovery is made during project development; and preparation, curation, and reporting requirements. Adoption and implementation of this measure would reduce or eliminate adverse impacts to paleontological resources to a less than significant level, and would satisfy the requirements of CEQA.

1 Introduction

Paleontological resources (i.e., fossils) are the remains or traces of prehistoric life. Fossils are typically preserved in layered sedimentary rocks and the distribution of fossils across the landscape is controlled by the distribution and exposure of the fossiliferous sedimentary rock units at and near the surface. Construction related impacts that typically affect or have the potential to affect paleontological resources include mass excavation operations, drilling/borehole excavations, trenching/tunneling, and grading.

This Paleontological Resources Assessment provides a description of the geologic units mapped at the surface within the project site, including types of fossils known to occur within the units (if any), the paleontological sensitivity for each unit, a review of relevant agency regulation, an assessment of potential impacts from project development, and recommended mitigation measures for the protection and recovery of significant fossils that may be impacted. This study has also been conducted in accordance with the requirements of the California Environmental Quality Act (CEQA). The County of Los Angeles (County) is the CEQA Lead Agency for the project.

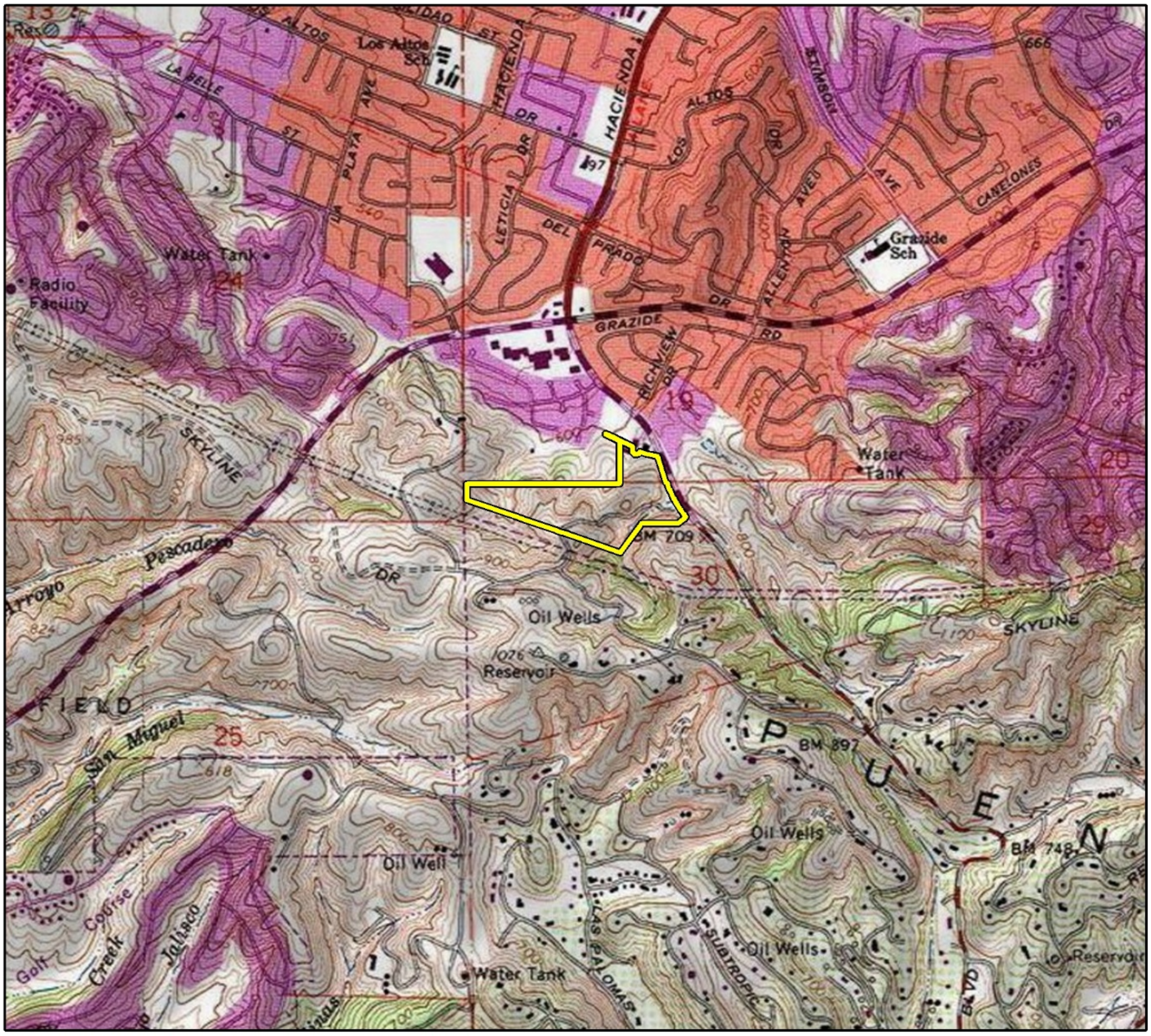
1.1 Project Location and Description

The International Buddhist Progress Society retained Rincon Consultants, Inc. (Rincon) to conduct a paleontological resources assessment for the Hsi Lai Monastery Site Project (project) at 15866 Draper Road in the community of Hacienda Heights in unincorporated Los Angeles County, California (Figure 1). The project site is approximately 1.5 miles south of State Route (SR) 60, and about 5.5 miles east of Interstate (I-) 605, within portions of Township 2 South, Range 10 West, Section 30 on the La Habra, CA United States Geological Survey 7.5-minute quadrangle. The project proposes the development of a 28.96-acre site located on the westerly side of South Hacienda Boulevard (Figure 2). The project site is bounded by residential neighborhoods on the north, the existing Hsi Lai Temple to the east across South Hacienda Boulevard, and open land on the west and south.

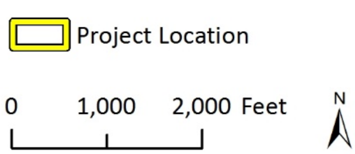
The project includes the construction of a monastery retreat center with associated accessory uses, that would contain 17 new two-story buildings, the renovation of the existing residential building into a volunteers' dormitory, a reception/meditation center, and 281 parking spaces on the project site. The project consists of five different types of buildings; primarily oriented east to west, these include temporary dormitory and living accommodations, multifunction gathering rooms and meditation halls, classrooms and offices for group learning, and communal food areas and dining halls. The project would contain a total of 143,671 square feet of programmed space and a 5,318-square-foot residential building renovated into a volunteers' dormitory. Integration with the existing natural features of the project site is an important criterion of project development.

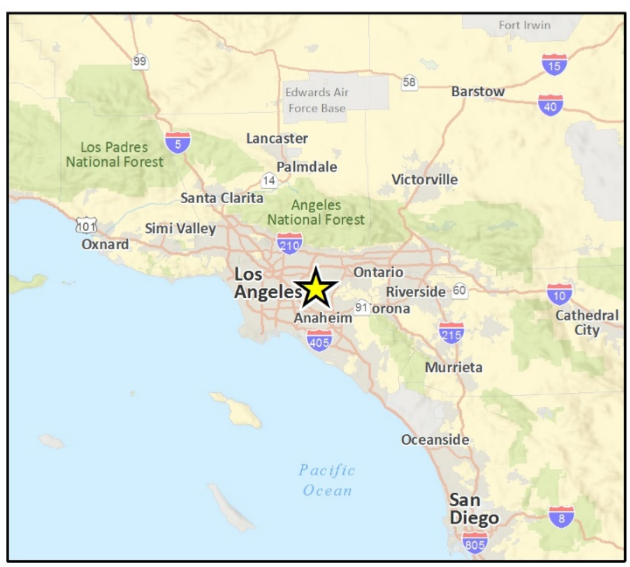
Project construction is estimated to occur from June 2021 to December 2022, with project occupancy beginning in 2023. Construction phases would include site preparation, grading, building construction, paving, and architectural coating. Project construction would excavate 84,600 cubic yards of soil; 27,420 cubic yards of this soil would be used as fill on-site, with the remaining 57,180 cubic yards exported off-site. Construction would not require any blasting or pile driving activities, and no such activities are proposed.

Figure 1 Project Vicinity Map



Imagery provided by National Geographic Society, Esri and its licensors © 2019. La Habra Quadrangle. T02S R10W S19,30. The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may havechanged since the original topographic map was assembled.





CRFig X Proj Locn Map

Figure 2 Project Location Map

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2 Regulatory Setting

Paleontological resources are considered nonrenewable scientific resources because once destroyed, they cannot be replaced. As such, paleontological resources are afforded protection under various federal, state, and local laws, ordinances, regulations, and standards. Regulations applicable to potential paleontological resources on the project site are summarized below.

2.1 State

California Environmental Quality Act

CEQA requires public agencies and private interests to identify the potential environmental consequences of their proposed projects on any object or site considered to be a historical resource of California (California Public Resources Code [PRC], section 21084.1, California Code of Regulations Title 14, section 15064.5). Appendix G of the *State CEQA Guidelines* (California Code of Regulations Title 14, Chapter 3) provides an Environmental Checklist of questions including a single question related to paleontological resources (Section VII.f) as follows: “Would the project directly or indirectly destroy a unique paleontological resource or site…?”

CEQA does not define “a unique paleontological resource or site.” However, the Society of Vertebrate Paleontology (SVP) has defined a “significant paleontological resource” in the context of environmental review. The SVP defines a Significant Paleontological Resource as:

> Fossils and fossiliferous deposits, here defined as consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years) [p. 11] (SVP 2010).

The loss of significant paleontological resources would be a significant impact under CEQA. The CEQA lead agency is responsible for ensuring that paleontological resources are protected in compliance with CEQA and other applicable statutes.

2.2 Local

County of Los Angeles

Paleontological resources are addressed under the Conservation and Natural Resource Element of the Los Angeles County 2035 General Plan (2012), which sets forth the following policies:

- **Policy C/NR 14.1**: Mitigate impacts from new development on or adjacent to historic, cultural, and paleontological resources to the greatest extent feasible.
- **Policy C/NR 14.2**: Support an inter-jurisdictional collaborative system that protects and enhances the County’s historic, cultural, and paleontological resources.

- **Policy C/NR 14.5**: Promote public awareness of the County's historic, cultural, and paleontological resources.
- **Policy C/NR 14.6**: Ensure proper notification and recovery processes are carried out for development on historic, cultural, and paleontological resources [157].

3 Resource Assessment Guidelines

Paleontological resources are limited, nonrenewable resources of scientific, cultural, and educational value and are afforded protection under CEQA. This assessment satisfies CEQA (13 PRC 21000 et seq.) and PRC Section 5097.5 (Stat. 1965, c 1136, p. 2792) requirements, and follows guidelines and significance criteria specified by the SVP *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources* (SVP 2010).

3.1 Paleontological Sensitivity

Paleontological sensitivity refers to the potential for a geologic unit to produce scientifically significant fossils. Direct impacts to paleontological resources occur when earthwork activities, such as grading or trenching, cut into geologic deposits (e.g., formations) within which fossils are buried and physically destroy the fossils. Because fossils are the remains of prehistoric animal and plant life, they are nonrenewable. Such impacts have the potential to be significant and, under CEQA guidelines, may require mitigation.

Significant paleontological resources are fossils or assemblages of fossils that are unique, unusual, rare, diagnostically important, or are common but have the potential to provide valuable scientific information for evaluating evolutionary patterns and processes, or which could improve our understanding of paleochronology, paleoecology, paleophylogeography, or depositional histories. New or unique specimens can provide new insights into evolutionary history; however, additional specimens of even well-represented lineages can be equally important for studying evolutionary pattern and process, evolutionary rates, and paleophylogeography. Even unidentifiable material can provide useful data for dating geologic units if radiocarbon dating is possible. As such, common fossils (especially vertebrates) may be scientifically important, and therefore considered significant.

Paleontological sensitivity is determined by rock type, history of the geologic unit in producing significant fossils, and previously recorded fossil localities from that unit. Paleontological sensitivity is derived from the known fossil data collected from the entire geologic unit, not just from any one specific survey. The SVP system outlined in the SVP *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources* is the generally accepted paleontological sensitivity classification scheme for projects on non-federal lands in California. Rincon has characterized the paleontological sensitivity for the proposed project according to the SVP procedures, as described below.

The SVP describes sedimentary rock units as having high, low, undetermined, or no potential for containing significant nonrenewable paleontological resources. This criterion is based on rock units within which vertebrate or significant invertebrate fossils have been determined by previous studies to be present or likely to be present. The SVP sensitivity categories are:

I. **High Potential.** Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered are considered to have a high potential for containing additional significant paleontological resources. Rocks units classified as having high potential for producing paleontological resources include, but are not limited to, sedimentary formations and some volcaniclastic formations (e. g., ashes or tephras), and some low-grade metamorphic rocks which contain significant paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils (e. g., middle Holocene and older, fine-grained fluvial sandstones, argillaceous and carbonate-rich paleosols, cross-bedded point bar sandstones, fine-grained marine sandstones). Paleontological potential consists of both (a) the potential for yielding abundant or significant vertebrate fossils or for yielding a few significant fossils, large or small, vertebrate, invertebrate, plant, or trace fossils and (b) the importance of recovered evidence for new and significant taxonomic, phylogenetic, paleoecologic, taphonomic, biochronologic, or stratigraphic data. Rock units which contain potentially datable organic remains older than late Holocene, including deposits associated with animal nests or middens, and rock units which may contain new vertebrate deposits, traces, or trackways are also classified as having high potential.

II. **Undetermined Potential.** Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment are considered to have undetermined potential. Further study is necessary to determine if these rock units have high or low potential to contain significant paleontological resources. A field survey by a qualified professional paleontologist to specifically determine the paleontological resource potential of these rock units is required before a paleontological resource impact mitigation program can be developed. In cases where no subsurface data are available, paleontological potential can sometimes be determined by strategically located excavations into subsurface stratigraphy.

III. **Low Potential.** Reports in the paleontological literature or field surveys by a qualified professional paleontologist may allow determination that some rock units have low potential for yielding significant fossils. Such rock units will be poorly represented by fossil specimens in institutional collections, or based on general scientific consensus only preserve fossils in rare circumstances and the presence of fossils is the exception not the rule, e. g. basalt flows or Recent colluvium. Rock units with low potential typically will not require impact mitigation measures to protect fossils.

IV. **No Potential.** Some rock units have no potential to contain significant paleontological resources, for instance high-grade metamorphic rocks (such as gneisses and schists) and plutonic igneous rocks (such as granites and diorites). Rock units with no potential require no protection or impact mitigation measures relative to paleontological resources.

4 Methods

Paleontological resources are not found in "soil" but are contained within the geologic deposits or bedrock that underlies the soil layer. Therefore, to determine whether a given project site has the potential to contain significant fossil resources at the subsurface, it is necessary to review relevant scientific literature to determine the geology and stratigraphy of the area. For this assessment, published geologic maps, fossil locality data, and literature were reviewed to identify the geologic units present at and below the surface within the project boundary, assess the paleontological sensitivity of the geologic units identified, and to determine the potential impacts to non-renewable paleontological resources from project development.

A formal paleontological locality search was requested from the Natural History Museum of Los Angeles County (LACM) on October 30, 2018. In addition, Rincon reviewed the online paleontological collections database of the University of California Museum of Paleontology (UCMP) to identify known fossil localities in Los Angeles County from geologic formations similar to those identified in the project site. The museum records search request was followed by a field survey on November 20, 2018. The purpose of the field survey was to inspect the ground surface visually for exposed fossils and to evaluate geologic exposures for their potential to contain preserved fossil material at the subsurface.

Following the paleontological inventory and assessment, the paleontological sensitivity ratings of the geological units were assigned based on the findings of the record search, field survey, and literature review. Based on the paleontological sensitivity findings, the potential impact to nonrenewable paleontological resources from project development was determined in accordance with the professional standards of the SVP (2010).

Preparation of this paleontological resources assessment and inventory was directed by Rincon Paleontology Program Manager, Jessica DeBusk, who served as the Qualified Paleontologist per SVP guidelines. Ms. DeBusk has 16 years of professional experience as a consulting paleontologist and meets the SVP's definition of a qualified professional paleontologist.

5 Description of Resources

5.1 Regional Geology

The project site is located in the Puente Hills, north of the Whittier fault and south of the San Fernando Valley, in the Peninsular Ranges geomorphic province of California (California Geological Survey 2002; Morton and Miller 2006). A geomorphic province is a region of unique topography and geology that is distinguished from other regions based on its landforms and geologic history (California Geological Survey 2002). The Peninsular Ranges are a northwest-southeast oriented complex of blocks that extend 125 miles from the Transverse Ranges to the tip of Baja California. The Peninsular Ranges are bounded to the east by the Colorado Desert and range in width from 30 to 100 miles (Norris and Webb 1990). The Peninsular Ranges province includes the Los Angeles basin, a northwest-trending lowland plain approximately 60 miles long and 35 miles wide bounded by the northern foothills of the Santa Monica Mountains to the north, the San Jose Hills and the Chino fault on the east, and the Santa Ana Mountains and San Joaquin Hills in the southeast (Yerkes et al. 1965).

Near the project site, the Puente Hills expose a thick accumulation of folded and faulted sedimentary deposits, including the Miocene Puente Formation, the Pliocene-Pleistocene Fernando Formation, and the terrestrial Pleistocene La Habra Formation (Morton and Miller 2006; Yerkes et al. 1965). These units originally accumulated in a structural depression underlying the Los Angeles basin that was the site of extensive accumulation of fluvial, alluvial, floodplain, shallow marine and deep shelf deposits. Sediment accumulation and subsidence has occurred there since the Late Cretaceous and has reached a maximum thickness of more than 20,000 feet (McCulloh and Beyer 2004; Norris and Webb 1990). Since at least the middle Miocene the region has been subject to major structural deformation and is bisected by several northwest- to west-trending fault zones (Yerkes et al. 1965). The Puente Hills are approximately 12 miles south of the Raymond-Sierra Madre fault, which is part of the Anacapa-Santa Monica-Hollywood-Raymond-Cucamonga zone of connected north-dipping thrust faults that forms the approximate structural boundary between the Peninsular Ranges and the Transverse Ranges (Morton and Miller 2006; Yerkes and Campbell 2005).

Geology and Paleontology of the Project Site

The project site is mapped at a scale of 1:24,000 by Dibblee and Ehrenspeck (2001) and 1:100,000 by Morton and Miller (2006) and includes three geologic units mapped at ground surface: the Miocene Puente Formation (Tmy, Tsc, Tscs), Quaternary older alluvium (Qoa), and Quaternary younger alluvium (Qae, Qyf_3) (Figure 3). The Puente Formation is well exposed throughout the Puente Hills (where the unit is alternatively referred to as the Monterey and Sycamore Canyon Formations by Dibblee and Ehrenspeck [1991]). The Puente Formation is the temporal equivalent of the younger strata of the Monterey Formation and was named as a separate unit by Eldridge and Arnold (1907) for its type section in the Puente Hills. The Puente Formation is composed of deep marine, submarine fan, and turbiditic deposits, which consist of locally diatomaceous, well-bedded, light gray siltstone and shale; well-bedded, very fine- to very coarse-grained sandstone; and interbedded pebble conglomerate (Yerkes and Campbell 2005). The Yorba Shale member (Tmy) and the underlying Sycamore Canyon member (Tsc, Tscs) are mapped in the project site. The Yorba

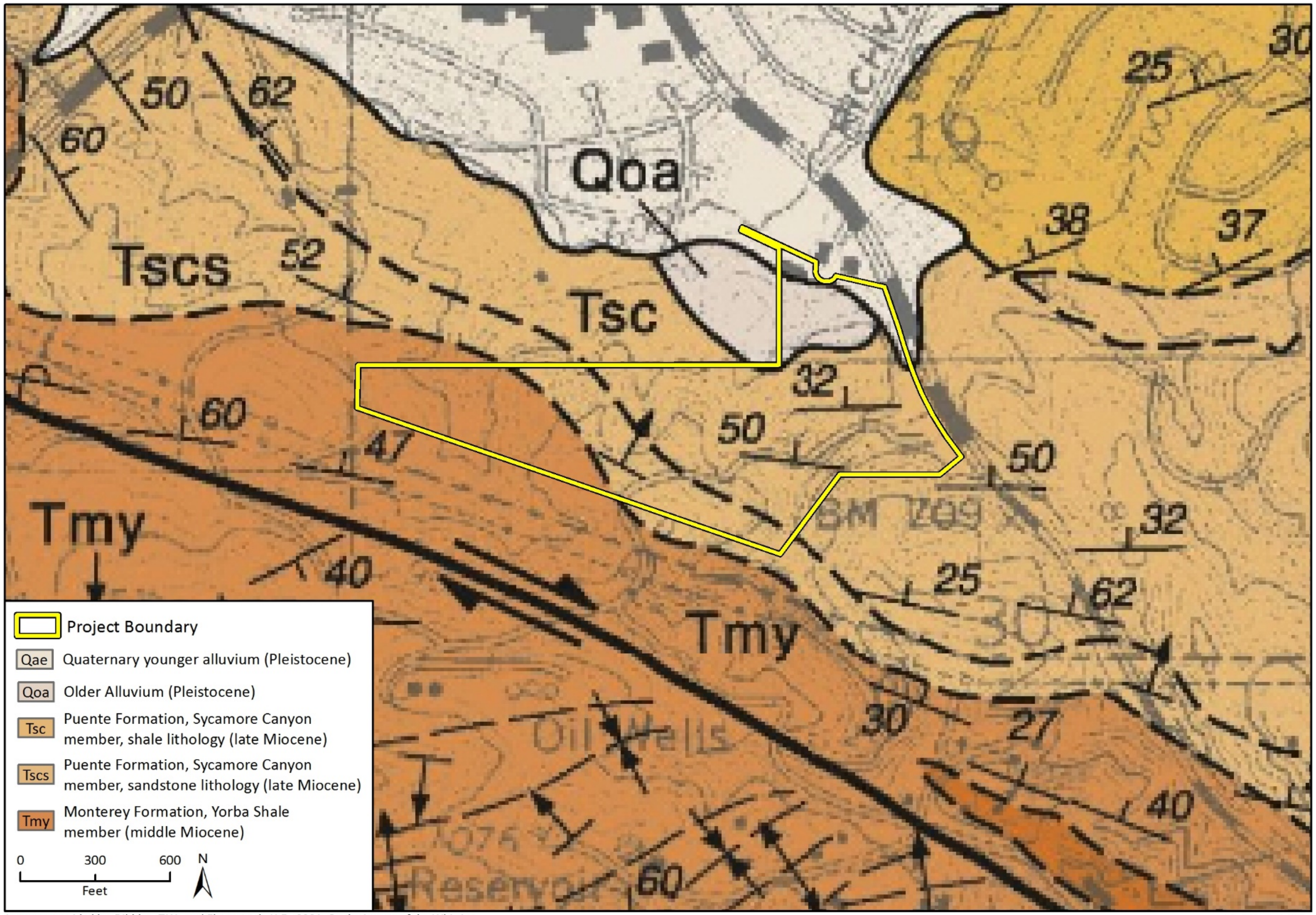
Shale member is composed of white to gray, thinly bedded, micaceous and siliceous siltstone and sandy siltstone with pale gray limestone concretions. The Sycamore Canyon member is composed of massive to well-bedded arkose, poorly to thinly bedded gray shale, and gray to rusty brown conglomerate, with crude bedding and pebble to cobble clasts of gneiss, quartz diorite, quartzite, and andesite (Morton and Miller 2006; Schoellhamer et al. 1954).

Numerous vertebrate localities have been documented from within the Puente Formation in southern California, which yielded specimens of marine and terrestrial fauna including whale, shark, bony fish, mastodon, rhinoceros, horse, rabbit, and rodent (Paleobiology Database 2018). In addition, several invertebrate, plant, and microfossil localities were discovered within the Puente Formation, including specimens of insect, mollusk, sponge, algae, and foraminifera (Huddleston and Takeuchi 2006; UCMP online database 2018). In 1977, during fieldwork conducted by the California Department of Fish and Game, the Yorba member of the Puente Formation yielded a specimen of *Acentrophryne* sp. (ceratioid anglerfish; LACM 6908) from within finely laminated shale, siltstone, and mudstone deposits. The specimen was recovered at an unknown depth from deep marine diatomaceous and turbiditic deposits near the Chalk Hill locality within the western Puente Hills (Carnevale and Pietsch 2009). Although fossil fishes are common in Miocene marine deposits of southern California, the *Acentrophryne* genus is extremely rare and is nearly unrepresented in the fossil record (Carnevale et al. 2008; Carnevale and Pietsch 2009). Other vertebrate specimens recovered from the Chalk Hill locality (LACM 6907) include toothed whale, bird, shark, bony fish, mollusk, barnacle, and shrimp (Huddleston and Takeuchi 2006). Nine additional specimens of anglerfish, representing five different taxa were collected during construction of the Metro Red Line Wilshire Boulevard/Vermont Avenue subway station in the City of Los Angeles in 1993 (LACM 6202). These specimens were also recovered from the Yorba Member of the Puente Formation at unknown depth.

The Quaternary older alluvium (Qoa) deposits are exposed in the northeastern project site along Hacienda Road and are composed of unconsolidated to moderately consolidated, poorly-sorted, gravel to coarse-grained sand, with slightly to moderately dissected surfaces (Morton and Miller 2006). Pleistocene alluvial deposits have proven to yield significant vertebrate fossil localities in Los Angeles County and throughout southern California from the coastal areas to the inland valleys. Localities have produced fossil specimens of terrestrial mammals such as mammoth, horse, camel, bison, birds, rodents, and reptiles (Jefferson 1991; Springer et al. 2009; UCMP online database 2018). Near the project site, in the San Gabriel Valley and vicinity, multiple fossil specimens of mammal, amphibian, and reptile have been recovered from Pleistocene alluvial deposits, including ground sloth, horse, mammoth, rodent, salamander, and snake (McLeod 2018; UCMP online database 2018).

The Quaternary younger alluvium (Qae, Qyf_3) deposits are exposed in the northern-most portion of the project site along Hacienda Road immediately south of and adjacent to the residential area located north of the project. These younger alluvial sediments are middle Holocene in age and are composed of slightly to moderately consolidated silt, sand, and coarse-grained sand to boulder alluvial-fan deposits, with slightly to moderately dissected surfaces (Morton and Miller 2006). Middle Holocene alluvial deposits are typically too young (i.e., less than 5,000 radiocarbon years) to contain scientifically significant paleontological resources (SVP 2010); however, they may be underlain at shallow or unknown depth by older Pleistocene age deposits.

Figure 3 Geologic Units in the Project Site



Imagery provided by Dibblee, T.W., and Ehrenspeck, H.E., 2001, Geologic map of the Whittier and La Habra quadrangles (western Puente Hills) Los Angeles and Orange Counties, California.

Fig X Geologic Units

5.2 Locality Record Search Results

A search of the paleontological locality records at the LACM resulted in no previously recorded fossil localities within the project site boundary; however, at least 6 vertebrate localities (LACM 6362, 5837, 6170, 6907-6908, and 7046) have been identified within the Miocene Puente Formation near the project site. The closest vertebrate locality, LACM 6362, produced a fossil specimen of whale (Cetacea) from the Puente Formation (Sycamore Canyon Member) in the Puente Hills Landfill, approximately 4 miles northwest of the project site. Several other localities (LACM 5837, 6170, 6907-6908, and 7046) have been previously identified approximately 5 miles northeast of the project site near San Jose Creek, south of the San Jose Hills. These localities yielded a suite of marine mammal and fish, including taxa of including bonito shark (*Isurus oxyrinchus*), top smelts (*Atherinops barkeri* and *Atherinopsis*), sauries (Scomberesocidae), herrings (*Etringus scintillans* and *Ganolytes cameo)*, cod (*Eclipes)*, anglerfish (*Acentrophryne longidens*), lanternfish (Myctophidae), jack (*Decapterus*), snake mackerel (*Thyrsocles kriegeri*), croakers (*Seriphus lavenbergi* and *Lompoquia*), sanddab (Pleuronectiformes), deep sea smelt (Bathylagidae), viperfish (*Chauliodus eximius*), bristlemouth (*Cyclothone*), pipefish (*Syngnathus emeritus*), and Cetacea (McLeod 2018). Depth of recovery was unreported.

A supplemental review of the museum records maintained in the UCMP online collections database was conducted. This database does not contain records for vertebrate fossil localities in the immediate vicinity of the project site. The closest vertebrate locality on record with the UCMP online database is V72102, which yielded a femur of ground sloth from Pleistocene sedimentary deposits in the San Jose Hills, approximately 15 miles east of the project site. The closest UCMP vertebrate locality for the Puente Formation is V3637, which yielded an unspecified vertebrate fossil from an unspecified location in eastern Los Angeles County.

6 Paleontological Field Survey

A field survey of the project site was conducted by Rincon Associate Paleontologist Heather Clifford on November 20, 2018. During fieldwork, a pedestrian walkover was performed of the project site, published geologic maps were verified, and the ground surface was visually examined for the evidence of paleontological resources. Special attention was paid to areas where the underlying geologic deposits were exposed at ground surface (e.g., within drainage channels and roadcuts). In addition, the geology and topography surrounding the project site was noted and nearby rock outcrops were examined for surface fossils. Project areas obscured at the surface by heavy vegetation or otherwise inaccessible due to safety concerns were not comprehensively examined. In the field, Clifford utilized Global Positioning System (GPS), topographic maps, and aerial photographs to locate geologic formation boundaries and the extent of proposed ground disturbance. When a rock outcrop was encountered, the surface of the exposure was visually scanned for paleontological resources. Notes were taken on the geology and lithology of each visible geologic unit and photographs were taken to document the survey (Figure 4, Photograph 1).

The project site consists of undeveloped rolling hills, bisected by an access road (Draper Road) that originates at Hacienda Boulevard and traverses the site in an east-to-west direction. Impassable areas of dense vegetation and steep hillsides were encountered in the southern portion of the project site and were inspected from the roadways and existing walking paths. Approximately 20 percent of the underlying geology is exposed at the ground surface, primarily within the northern portion of the project site, along Draper Road and on steep slopes (Figure 4, Photograph 2). Nearly 80 percent of the geologic deposits in the project site are completely obscured by vegetation, including dense yellow-green grass up to 4 feet high, low lying groundcover, dense low scrubbrush, and sparse oak trees. The vegetation is particularly dense in the area of the drainage channel south of Draper Road. In addition, underlying geologic units are obscured by poorly to moderately developed soil.

The Puente Formation is locally exposed in areas of steep terrain within the project site and along road cuts, where it is composed of gray to tan, fine-grained sandstone to mudstone that weathers tan-orange. The mudstone is well bedded with abundant silt, and minor clay with a diatomaceous composition. The sandstone is dominated by well sorted quartz grains, with subordinate feldspar, and scant lithics (Figure 4, Photograph 3). The sandstone is locally conglomeratic with well-rounded quartz granodiorite and gneiss pebbles (Figure 4, Photograph 4). The sandstone is crudely bedded, moderately indurated, moderately friable, with a blocky texture and locally resistant outcrops.

No fossil resources were discovered during the course of fieldwork. However, as noted above, nearly 80 percent of the survey area was obscured by vegetation and soil development, which limited surface visibility. The Miocene marine sedimentary deposits that underlie the project site are characterized by fine-grained sediments that have proven to be conducive to the preservation of vertebrate remains in Los Angeles County and the Puente Hills near the project site. Although fossils were not encountered at the surface of the project site, observed lithologic characteristics, as well as published mapping, literature, and museum records results, indicate that these geologic units may contain an unknown number of fossil resources at the subsurface, although their significance, abundance, and predictability of occurrence may vary.

Figure 4 Site Photographs

Photograph 1. Overview of the project site; dense vegetation obscures the ground surface. View to the southwest from Draper Road.

Photograph 2. Fine-grained mudstone of the Sycamore Canyon member of the Miocene Puente Formation. View to the west.

Photograph 3. Quartz and feldspar sandstone (arkose) in the Sycamore Canyon member of the Miocene Puente Formation. View to the southwest.

Photograph 4. Pebble conglomerate in the Sycamore Canyon member of the Miocene Puente Formation. View to the southeast.

7 Evaluation, Impacts, and Recommendations

7.1 Paleontological Sensitivity Evaluation

Based on the literature review and records search results, the paleontological sensitivity of the geologic units underlying the project site was determined in accordance with criteria set forth by the SVP (2010). Under this criteria, the Miocene Puente Formation and Quaternary older alluvium have a high paleontological sensitivity and a high potential to contain buried intact paleontological resources because the units have proven to yield significant vertebrate fossils near the project site and elsewhere in Los Angeles County. Quaternary younger alluvium has a low paleontological sensitivity and a low potential to yield significant vertebrate fossils; however, Quaternary younger alluvium may be underlain at shallow or unknown depth by older geologic units (e.g., Quaternary older alluvium and Miocene Puente Formation) that have a high potential to yield significant vertebrate fossils. The paleontological sensitivity of the geologic units underlying the project site is depicted in Figure 5.

7.2 Impacts

Paleontological resources are nonrenewable and are vulnerable to impacts from development related activities. Fossils provide important information for our understanding of past environments, the history of life, past species diversity, how species respond to climate change, and many other lines of scientific inquiry. Impacts to fossils and fossil localities, and loss of fossils from looting or other destructive activity at fossil sites results in the direct loss of scientific data and directly impacts the ability to conduct scientific research on evolutionary patterns and geological processes. Construction and grading activities associated with any development that will impact previously undisturbed, paleontologically sensitive geologic deposits have the potential for the destruction of significant paleontological resources.

As described above, the Miocene Puente Formation and Quaternary older alluvium have a high potential to contain paleontological resources, and Quaternary younger alluvium has a low potential to contain paleontological resources but may be underlain at potentially shallow depths by older geologic units of relatively higher paleontological sensitivity. As such, ground disturbing activities in previously undisturbed portions of the project site (including grading, excavation, drilling, or any other activity that disturbs the surface or subsurface geologic formations) could potentially result in destruction, damage, or loss of scientifically important paleontological resources and associated stratigraphic and paleontological data. Such activities could therefore result in a significant impact to paleontological resources under Appendix G of the CEQA Guidelines.

Figure 5 Paleontological Sensitivity in the Project Site

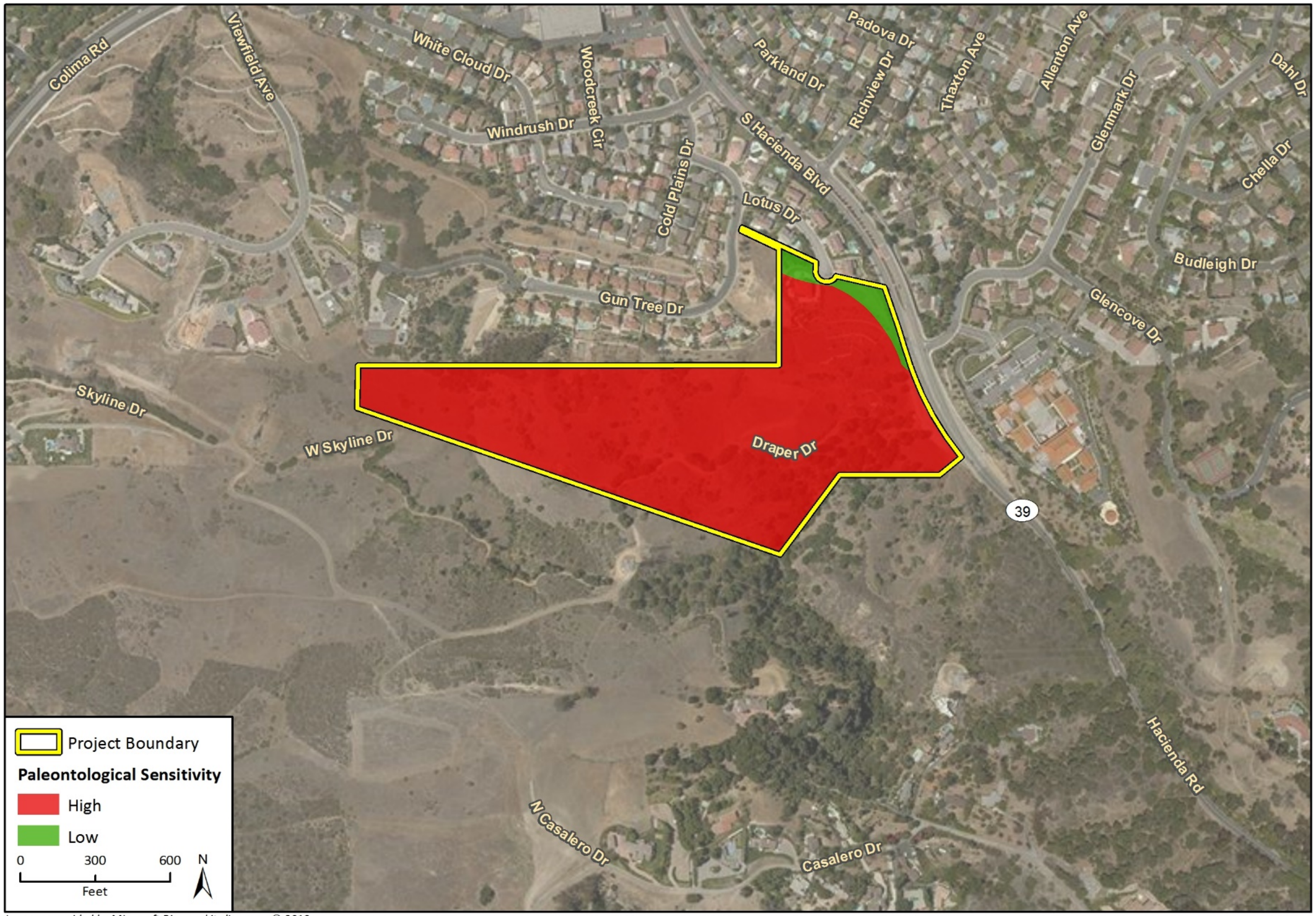


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Fig X Paleo Sensitivity

7.3 Recommendations

The following recommended mitigation would address the potentially significant impacts relating to the potential discovery of paleontological resources during ground disturbing activities associated with project implementation. The mitigation will require preparation of a Paleontological Resources Mitigation Plan (PRMP) that shall consist of the specific protocols described below. These measures would apply to all phases of project construction and would ensure that any paleontological resources that may be encountered on-site are preserved. Implementation of the following recommended mitigation would reduce potential project impacts to paleontological resources to a less-than-significant level pursuant to the requirements of CEQA.

- **Develop a Paleontological Resources Mitigation Plan.** Prior to the commencement of ground disturbing activities, a qualified professional paleontologist shall be retained to prepare and implement a PRMP for the project. A Qualified Paleontologist is an individual who meets the education and professional experience standards as set forth by the SVP (2010), which recommends the paleontologist shall have at least a Master's Degree or equivalent work experience in paleontology, shall have knowledge of the local paleontology, and shall be familiar with paleontological procedures and techniques. The PRMP shall consist of the following components, which include paleontological monitoring procedures; communication protocols to be followed in the event that an unanticipated fossil discovery is made during project development; and preparation, curation, and reporting requirements.
- **Paleontological Worker Environmental Awareness Program (WEAP).** Prior to the start of construction, the Qualified Paleontologist or his or her designee, shall conduct training for construction personnel regarding the appearance of fossils and the procedures for notifying paleontological staff should fossils be discovered by construction staff. The WEAP shall be fulfilled at the time of a preconstruction meeting. In the event a fossil is discovered by construction personnel anywhere in the project site, all work in the immediate vicinity of the find shall cease and a qualified paleontologist shall be contacted to evaluate the find before re-starting work in the area. If it is determined that the fossil(s) is (are) scientifically significant, the qualified paleontologist shall complete the mitigation outlined below to mitigate impacts to significant fossil resources.
- **Paleontological Monitoring.** Ground disturbing construction activities within the previously undisturbed Puente Formation (Tsc, Tscs, Tmy) and Quaternary older alluvium (Qoa), including grading, trenching, foundation work, and other excavations, shall be monitored on a full-time basis. Ground disturbing construction activities within the previously undisturbed Quaternary younger alluvium, including grading, trenching, foundation work, and other excavations, shall be monitored part-time (i.e., spot-checked) to determine if either undisturbed Puente Formation or Quaternary older alluvium are impacted at depth. Monitoring shall be conducted by a qualified paleontological monitor, who is defined as an individual who meets the minimum qualifications per standards set forth by the SVP (2010), which includes a B.S. or B.A. degree in geology or paleontology with one year of monitoring experience and knowledge of collection and salvage of paleontological resources. The duration and timing of the monitoring shall be determined by the Qualified Paleontologist and the location and extent of proposed ground disturbance. If the Qualified Paleontologist determines that full-time or part-time monitoring is no longer warranted, based on the specific geologic conditions at the surface or at depth, the Qualified Paleontologist may recommend that monitoring be reduced to periodic spot-checking or ceased entirely.

- **Fossil Discovery, Preparation, and Curation.** If a paleontological resource is discovered, the monitor shall have the authority to temporarily divert the construction equipment around the find until it is assessed for scientific significance and collected. Typically, fossils can be safely salvaged quickly by a single paleontologist and not disrupt construction activity. In some cases, larger fossils (such as complete skeletons or large mammals) require more extensive excavation and longer salvage periods. In this case, the paleontologist should have the authority to temporarily direct, divert or halt construction activity to ensure that the fossil(s) can be removed in a safe and timely manner.

  Once salvaged, significant fossils shall be identified to the lowest possible taxonomic level, prepared to a curation-ready condition and curated in a scientific institution with a permanent paleontological collection (such as the LACM) along with all pertinent field notes, photos, data, and maps. The cost of curation is assessed by the repository and is the responsibility of the project owner.
- **Final Paleontological Mitigation Report.** At the conclusion of laboratory work and museum curation, a final report shall be prepared describing the results of the paleontological mitigation monitoring efforts associated with the project. The report shall include a summary of the field and laboratory methods, an overview of the project geology and paleontology, a list of taxa recovered (if any), an analysis of fossils recovered (if any) and their scientific significance, and recommendations. The final report shall be submitted to the County. If the monitoring efforts produced fossils, then a copy of the report shall also be submitted to the designated museum repository.

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Appendix F

Noise Study

Hsi Lai Monastery Site

Noise and Vibration Study

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1 Project Description and Impact Summary

1.1 Introduction

This study analyzes the potential noise and vibration impacts of the proposed Hsi Lai Monastery Project (project) in the Hacienda Heights neighborhood of Los Angeles County, California. Rincon Consultants, Inc. (Rincon) prepared this study under contract to the International Buddhist Progress Society (IBPS) for the County of Los Angeles (County) to use in support of the environmental documentation being prepared pursuant to the California Environmental Quality Act (CEQA). The purpose of this study is to analyze the project's noise and vibration impacts related to both temporary construction activity and long-term operation of the project. Table 1 provides a summary of project impacts.

Table 1 Summary of Impacts

Impact Statement	Level of Significance	Applicable Recommendations
Would the project result in the exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? For noise compatibility, noise levels at noise-sensitive exterior areas exceeding 65 dBA CNEL. For noise compatibility, interior noise levels in habitable noise-sensitive areas exceed 45 dBA CNEL.	Less than significant impact with mitigation (Construction) Less than significant impact (Operation)	Recommended Measure N-1 (Construction)
Would the project result in the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? A vibration velocity of 0.01 in./sec., or 68 VdB.	Less than significant impact (Construction) Less than significant impact (Operation)	None
Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? Project-related traffic noise increase the ambient noise level at noise-sensitive locations by 3 dBA or more and the ambient noise levels under with-project conditions fall within the "Normally Unacceptable" or "Clearly Unacceptable" categories; or, Project-related traffic noise increases the ambient noise level at noise-sensitive locations by 5 dBA or more.	Less than significant impact	None
Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	Less than significant impact with mitigation (Construction)	Recommended Measure N-1 (Construction)
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 expose people residing or working in the Project Area to excessive noise levels?	No Impact	None
For a project within the vicinity of a private airstrip, would the project expose people residing or working the Project Area to excessive noise levels?	No Impact	None

Regulatory Compliance Measures

Regulatory compliance measures (RCMs) are existing requirements based on federal, state, or local regulations. RCMs are not included as mitigation measures, because they are regulatory requirements of the building permit issuance process that apply to the project.

RCM-1 Construction Hours

The project shall comply with Los Angeles County Code (LACC) Section 12.08.440, which restricts construction activities to between 7:00 a.m. and 7:00 p.m. Monday through Friday, and prohibits such activities any time on Sundays or holidays.

RCM-2 Construction Notification

The project shall comply with LACC Section 16.92.070, which requires a construction site notice be provided to the director of public works for review and approval no later than 20 days prior to commencement of construction activities. At minimum, the notice shall be distributed to impacted residents and occupants, within 500 feet of the construction area, at least 48 hours prior to commencement of construction activities. The notice may take the form of door hangers or direct mailings. The notification shall include the dates and times of construction, and the name and the phone number of the contractor, owner, or owner's agent.

Mitigation Measures

N-1 Construction Noise Reduction

The applicant, or their designated representative, will construct a temporary noise barrier along the northern and eastern limits of construction or along the northern and eastern property lines. The barrier must be sufficiently high to block the lines of sight of surrounding receivers to construction activities, and the barrier shall be, at a minimum, 10 feet above ground elevation. The noise barrier will be constructed of material with a minimum weight of two pounds per square foot, with no gaps or perforations. Noise barriers may be constructed of, but are not limited to, 0.625-inch plywood, 0.625-inch oriented strand board, or hay bales.

Implementation of this mitigation measure would reduce construction noise at nearby residential properties to a maximum hourly noise level of 59 dBA L_{eq}. Therefore, with incorporation of N-1, construction noise impacts would be less than significant.

1.2 Project Summary

Project Location

The 24.94-acre project site is located at 15866 Draper Road, Hacienda Heights, California (Assessor Parcel Number 8240-036-021). The project site is located west of South Hacienda Boulevard and approximately two miles south of California State Route 60 in the County of Los Angeles. The eastern portion of the project site has a zoning designation of Light Agriculture (A-1-1), and the western portion has a zoning designation of Heavy Agriculture (A-2-1). Single- and multi-family residences are located to the north and northeast. A portion of the Arroyo San Miguel Open Space is located south of the project site, and the Hsi Lai Temple is located directly east of the project site. Figure 1 shows the regional location of the site, and Figure 2 shows the project site within the existing neighborhood context.

Figure 1 Regional Location

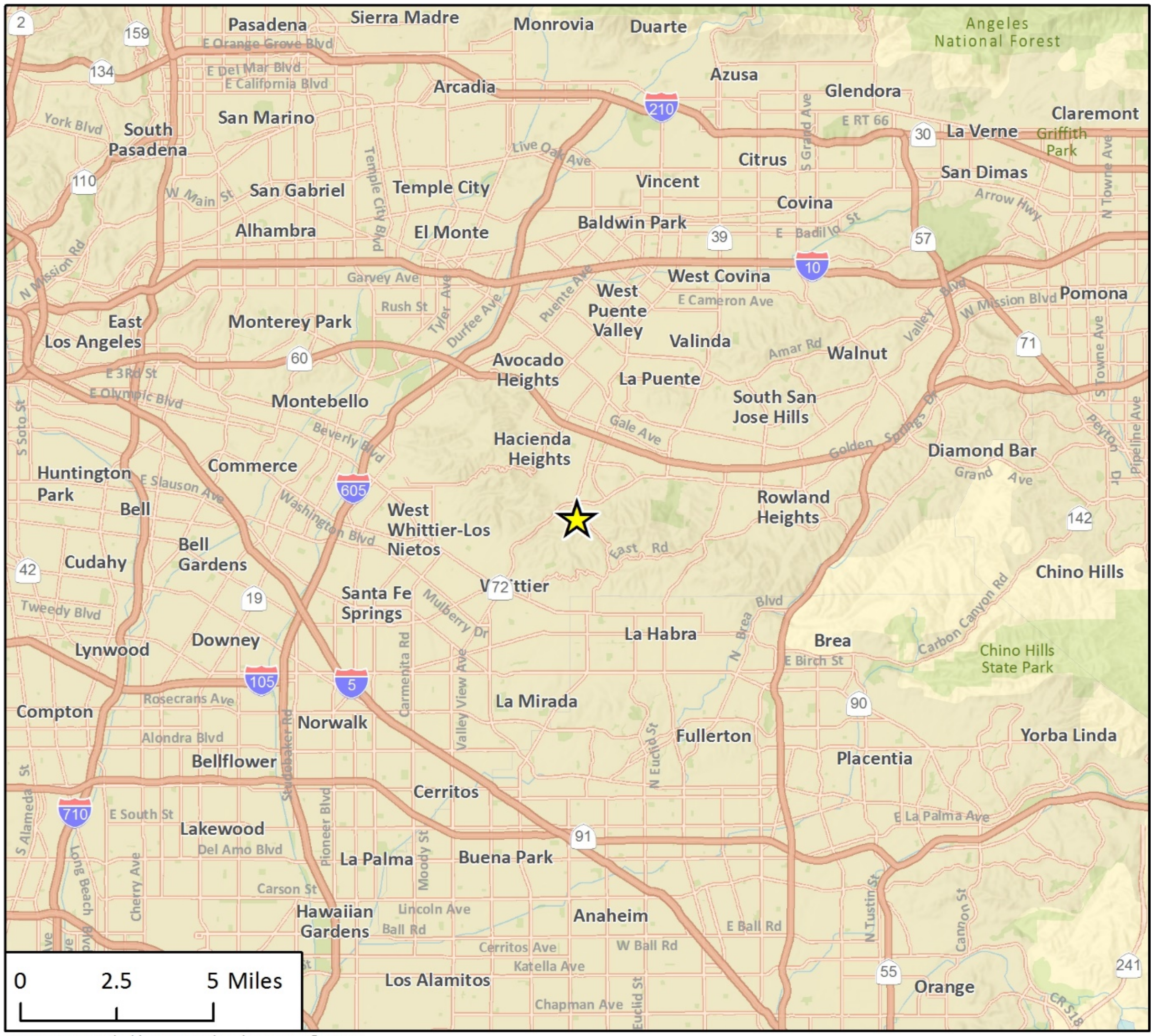

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Figure 2 Project Site Location

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Fig 2 Project Site Location Map

Project Description

The project entails construction of a monastery with associated accessory uses on a undeveloped site located across the street from the Hsi Lai Temple on the east side of South Hacienda Boulevard. The project would serve as a meditation center and provide temporary living accommodations for the IBPS senior monastics. In addition, the monastery would host educational programs and events for other members of the Buddhist community who would come to meditate, reflect, study, and learn. The project would involve construction of 8 dormitory-style living facilities for a maximum of 68 senior monastic residents and temporary overnight guests, dining facilities, classrooms, offices, and a reception/meditation complex near the entrance to the project site to accommodate a maximum of 400 people. The project proposes a total of 17 buildings, for a total building space of 131,034-square feet. Figure 3 shows the proposed project site plan.

The two main buildings (A and B) would be organized around a central plaza located at the entrance to the site from South Hacienda Boulevard. Building A would house the main multi-function hall, with an open area for cultural gatherings and meditation purposes. Building A would also house support service areas, offices, and restrooms. The reception center, cafeteria, and main kitchen would be situated in Building B. Five levels of underground parking would be constructed below the entry plaza. Additional parking spaces would be provided in enclosed garages in Buildings H and G and along the site access roadway. An arrangement of two type-C buildings and three type-D buildings would be arranged along the north-facing slopes, below the ridgeline running east to west across the site towards South Hacienda Boulevard. These buildings would contain classrooms, offices, and meditation facilities for smaller groups and short-term visitors. Buildings E, F, and G would provide meditation spaces, recreation facilities, dining and accommodations for short stays by members of the monastic community and visitors. Buildings H and I would be the most private of the development, and would offer accommodations for longer stays by senior monastics.

The reception/meditation complex would hold a number of different types of activities including special cultural events and celebrations, cultural programs, and meditation classes. Special events and celebrations for up to 400 people maximum would be held in Buildings A and B. These events would occur two to three times a year and would occur during the course of a single day or evening. Parking would be provided beneath Building A. Cultural programs would be offered throughout the year with up to 150 people in attendance. Meditation classes would vary from 10 people to 30 people, and would take place in buildings C and D. Meals, dining facilities, and recreational activities would be housed in buildings E and F. The temporary accommodations offered in Building G would house up to 32 guests. Buildings H and I would accommodate up to 36 long-term senior monastic residents. The cultural events and celebrations would not occur at the same time as the cultural programs or meditation classes. The combined, concurrent activities at the center will not exceed 400 people on site at any given time.

Project construction is anticipated to require approximately 20 months, estimated to occur from June 2021 to December 2022, with project occupancy beginning in 2023. Construction phases would include site preparation, grading, building construction, architectural coating (painting), and paving of the project site. Construction would not require any blasting or pile driving activities.

Figure 3 Project Site Plan

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Fig 2 Project Site Location Map

2 Background

2.1 Overview of Sound Measurement

Sound is a vibratory disturbance created by a moving or vibrating source, which is capable of being detected by the hearing organs. Noise is defined as sound that is loud, unpleasant, unexpected, or undesired and may therefore be classified as a more specific group of sounds. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and, in the extreme, hearing impairment (Caltrans 2013a).

Noise levels are commonly measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound pressure levels so that they are consistent with the human hearing response, which is most sensitive to frequencies around 4,000 Hertz and less sensitive to frequencies around and below 100 Hertz (Kinsler, et. al. 1999). Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used to measure earthquake magnitudes. A doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; dividing the energy in half would result in a 3 dB decrease (Crocker 2007).

Human perception of noise has no simple correlation with sound energy: the perception of sound is not linear in terms of dBA or in terms of sound energy. Two sources do not “sound twice as loud” as one source. It is widely accepted that the average healthy ear can barely perceive changes of 3 dBA, increase or decrease (i.e., twice the sound energy); that a change of 5 dBA is readily perceptible (8 times the sound energy); and that an increase (or decrease) of 10 dBA sounds twice (half) as loud ([10.5x the sound energy] Crocker 2007).

Sound changes in both level and frequency spectrum as it travels from the source to the receiver. The most obvious change is the decrease in level as the distance from the source increases. The manner by which noise reduces with distance depends on factors such as the type of sources (e.g., point or line, the path the sound will travel, site conditions, and obstructions). Noise levels from a point source typically attenuate, or drop off, at a rate of 6 dBA per doubling of distance (e.g., construction, industrial machinery, ventilation units). Noise from a line source (e.g., roadway, pipeline, railroad) typically attenuates at about 3 dBA per doubling of distance (Caltrans 2013a). The propagation of noise is also affected by the intervening ground, known as ground absorption. A hard site, such as a parking lot or smooth body of water, receives no additional ground attenuation and the changes in noise levels with distance (drop-off rate) result from simply the geometric spreading of the source. An additional ground attenuation value of 1.5 dBA per doubling of distance applies to a soft site (e.g., soft dirt, grass, or scattered bushes and trees)(Caltrans 2013a). Noise levels may also be reduced by intervening structures; the amount of attenuation provided by this “shielding” depends on the size of the object and the frequencies of the noise levels. Natural terrain features such as hills and dense woods, and man-made features such as buildings and walls, can significantly alter noise levels. Generally, any large structure blocking the line of sight will provide at least a 5-dBA reduction in source noise levels at the receiver (Federal Highway Administration [FHWA] 2011). Structures can substantially reduce exposure to noise as well. The FHWA’s guidelines indicate that modern building construction generally provides an exterior-to-interior noise level reduction of 20 to 35 dBA with closed windows.

The impact of noise is not a function of loudness alone. The time of day when noise occurs and the duration of the noise are also important factors of project noise impact. Most noise that lasts for more than a few seconds is variable in its intensity. Consequently, a variety of noise descriptors have been developed. One of the most frequently used noise metrics is the equivalent noise level (L_{eq}); it considers both duration and sound power level. L_{eq} is defined as the single steady A-weighted level equivalent to the same amount of energy as that contained in the actual fluctuating levels over time. Typically, L_{eq} is summed over a one-hour period. L_{max} is the highest root mean squared (RMS) sound pressure level within the sampling period, and L_{min} is the lowest RMS sound pressure level within the measuring period (Crocker 2007).

Noise that occurs at night tends to be more disturbing than that occurring during the day. Community noise is usually measured using Day-Night Average Level (DNL), which is the 24-hour average noise level with a +10 dBA penalty for noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours; it is also measured using Community Noise Equivalent Level (CNEL), which is the 24-hour average noise level with a +5 dBA penalty for noise occurring from 7:00 p.m. to 10:00 p.m. and a +10 dBA penalty for noise occurring from 10:00 p.m. to 7:00 a.m. (Caltrans 2013a). Noise levels described by DNL and CNEL usually differ by about 1 dBA. The relationship between the peak-hour L_{eq} value and the Ldn/CNEL depends on the distribution of traffic during the day, evening, and night. Quiet suburban areas typically have CNEL noise levels in the range of 40 to 50 dBA, while areas near arterial streets are in the 50 to 60-plus CNEL range. Normal conversational levels are in the 60 to 65-dBA L_{eq} range; ambient noise levels greater than 65 dBA L_{eq} can interrupt conversations (FTA 2018).

2.2 Vibration

Groundborne vibration of concern in environmental analysis consists of the oscillatory waves that move from a source through the ground to adjacent structures. The number of cycles per second of oscillation makes up the vibration frequency, described in terms of Hz. The frequency of a vibrating object describes how rapidly it oscillates. The normal frequency range of most groundborne vibration that can be felt by the human body starts from a low frequency of less than 1 Hz and goes to a high of about 200 Hz (Crocker 2007).

While people have varying sensitivities to vibrations at different frequencies, in general they are most sensitive to low-frequency vibration. Vibration in buildings, such as from nearby construction activities, may cause windows, items on shelves, and pictures on walls to rattle. Vibration of building components can also take the form of an audible low-frequency rumbling noise, referred to as groundborne noise. Groundborne noise is usually only a problem when the originating vibration spectrum is dominated by frequencies in the upper end of the range (60 to 200 Hz), or when foundations or utilities, such as sewer and water pipes, physically connect the structure and the vibration source (Federal Transit Administration [FTA] 2018). Although groundborne vibration is sometimes noticeable in outdoor environments, it is almost never annoying to people who are outdoors. The primary concern from vibration is that it can be intrusive and annoying to building occupants and vibration-sensitive land uses.

Vibration energy spreads out as it travels through the ground, causing the vibration level to diminish with distance away from the source. High-frequency vibrations diminish much more rapidly than low frequencies, so low frequencies tend to dominate the spectrum at large distances from the source. Discontinuities in the soil strata can also cause diffractions or channeling effects that affect the propagation of vibration over long distances (Caltrans 2013b). When a building is impacted by vibration, a ground-to-foundation coupling loss will usually reduce the overall vibration level. However, under rare circumstances, the ground-to-foundation coupling may actually amplify the vibration level due to structural resonances of the floors and walls.

Vibration amplitudes are usually expressed in peak particle velocity (PPV) or root mean squared (RMS) vibration velocity. The PPV and RMS velocity are normally described in inches per second (in/sec). PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is often used in monitoring of blasting vibration because it is related to the stresses that are experienced by buildings (Caltrans 2013b).

Although PPV is appropriate for evaluating the potential for building damage, it is not always suitable for evaluating human response. It takes some time for the human body to respond to vibration signals. In a sense, the human body responds to average vibration amplitude. The RMS of a signal is the average of the squared amplitude of the signal, typically calculated over a 1-second period. As with airborne sound, the RMS velocity is often expressed in decibel notation as vibration decibels (VdB), which serves to compress the range of numbers required to describe vibration (FTA 2018).

Damage to structures occurs when vibration levels range from 2 to 6 in/sec PPV. One half this minimum threshold, or 1 inch per second PPV is considered a safe criterion that would protect against structural damage (Caltrans 2013b).

Vibration significance ranges from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, the general threshold where minor damage can occur in fragile buildings (FTA 2018). The general human response to different levels of groundborne vibration -velocity levels is described in Table 2.

Table 2 Human Response to Different Levels of Groundborne Vibration

Vibration Velocity Level	Human Reaction
65 VdB	Approximate threshold of perception for many people
75 VdB	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find that transportation-related vibration at this level is unacceptable
85 VdB	Vibration acceptable only if there are an infrequent number of events per day

Source: FTA 2018

2.3 Sensitive Receivers

Noise exposure goals for various types of land uses reflect the varying noise sensitivities associated with those uses. The County of Los Angeles Noise Element identifies noise sensitive uses as residences, hospitals, schools, childcare facilities, and places of assembly (County of Los Angeles 2015).

Vibration sensitive receivers are similar to noise sensitive receivers, such as residences, and institutional uses, such as schools, churches, and hospitals. However, vibration sensitive receivers also include buildings where vibrations may interfere with vibration-sensitive equipment, affected by levels that may be well below those associated with human annoyance.

2.4 Project Noise Setting

The most common source of noise in the project site vicinity is vehicular traffic on South Hacienda Boulevard. Ambient noise levels are generally highest during the daytime and rush hour unless congestion substantially slows speeds.

The nearest sensitive receivers to the project site are single-family residences located to the north along the project boundary, residences located immediately north of the Hsi Lai Temple and 200 feet northeast of the project site north of the intersection of Glenmark Drive and South Hacienda Boulevard, and the existing Hsi Lai Temple (3456 Glenmark Drive) across South Hacienda Boulevard, approximately 190 feet to the east.

To characterize ambient sound levels at and near the project site, two 15-minute sound level measurements were conducted on November 1, 2018, during the evening peak hour between 4:45 p.m. and 5:26 p.m., and one one-hour sound level measurement was collected on November 25, 2018 between 1:00 p.m. and 2:00 p.m., during an event at the Hsi Lai Temple (3456 Glenmark Drive). An Extech, Model 407780A, ANSI Type 2 integrating sound level meter was used to conduct the measurements.

Noise Measurement (NM) 1 was taken in the middle of the project site and represents the existing ambient noise levels on the project site. NM 2 was taken northeast of the project site, along South Hacienda Boulevard, to capture existing traffic noise. NM 3 was taken on Glencove Drive, approximately 480 feet east of the center courtyard at the existing Hsi Lai Temple during an event to provide a reference noise level for events proposed by the project. Figure 4 shows the noise measurement locations, and Table 3 summarizes the results of the noise measurements. Detailed sound level measurement data are included in Appendix A.

Table 3 Project Vicinity Sound Level Monitoring Results

Measurement Location	Measurement Location	Sample Times	Approximate Distance to Primary Noise Source	Leq (dBA)	Lmin (dBA)	Lmax (dBA)
1	Middle of the project site	4:45 - 5:00 p.m.	1,100 feet to centerline of S. Hacienda Blvd.	50	42	67
2	Along S. Hacienda Blvd. northeast of project site	5:11 – 5:26 p.m.	50 feet to centerline of S. Hacienda Blvd.	76	54	91
3	East of project site and existing Hsi Lai Temple, on Glencove Drive	1:00 – 2:00 p.m.	35 feet to centerline of Glencove Drive	51	35	71

See Figure 4 for Noise Measurement Locations.

Figure 4 Noise Measurement Locations

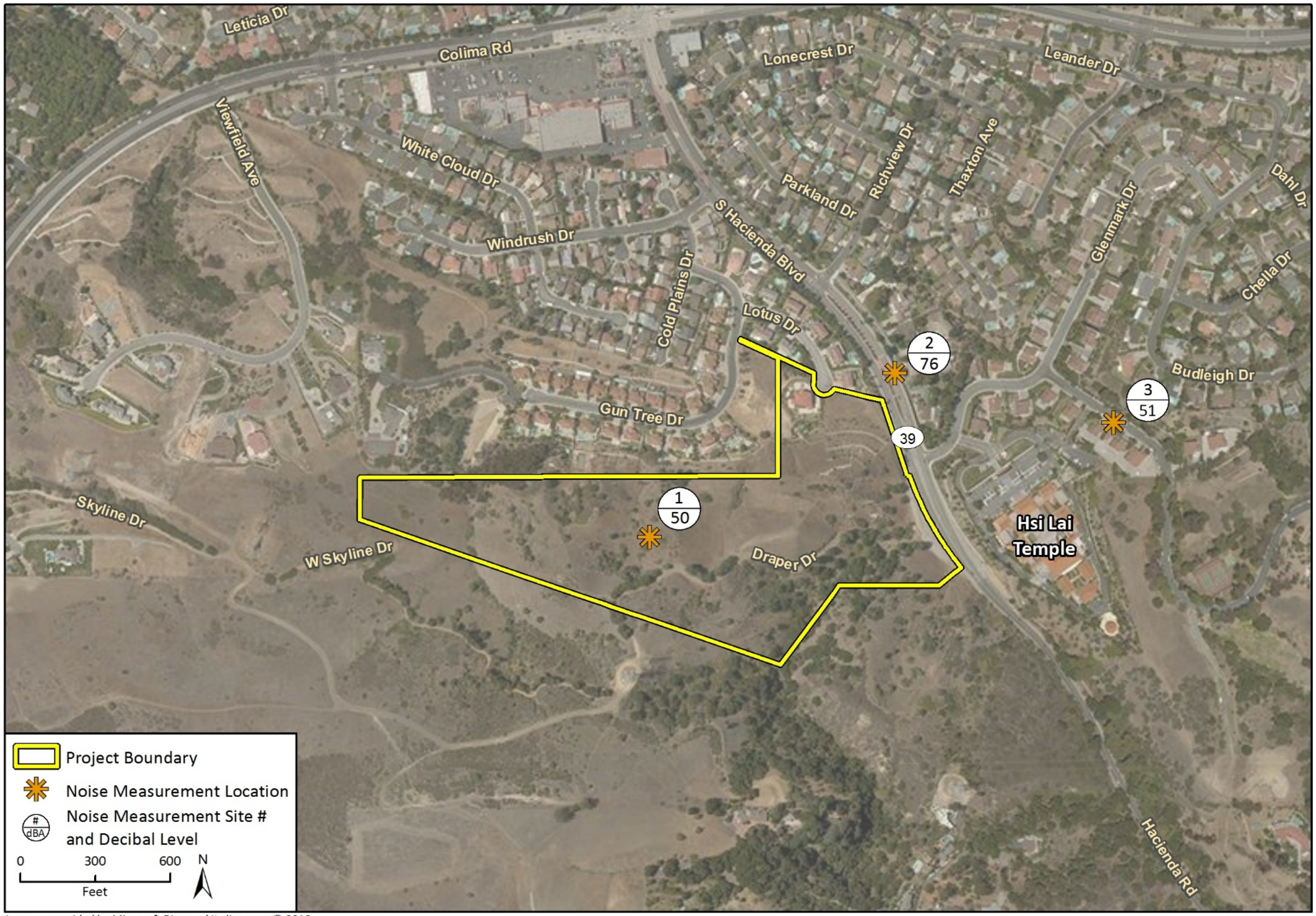

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Fig 3 Noise Measurements

2.5 Regulatory Setting

County of Los Angeles General Plan Noise Element

The County maintains the health and welfare of its residents with respect to noise through abatement ordinances and land use planning. The County's General Plan includes goals and policies with the intent to reduce excessive noise impacts. Policies applicable to the project are shown in Table 4.

Table 4 County General Plan Goals and Policies Related to Noise

Goal N1: The Reduction of Excessive Noise Impacts	
Topic	**Policy**
Reducing Noise Impacts	**Policy N 1.2**: Reduce exposure to noise impacts by promoting land use compatibility.
	Policy N 1.5: Ensure compliance with the jurisdictions of State Noise Insulation Standards (Title 24, California Code of Regulations and Chapter 35 of the Uniform Building Code), such as noise insulation of new multifamily dwellings constructed within the 60 dB (CNEL or Ldn) noise exposure contours.
	Policy N 1.10: Orient residential units away from major noise sources (in conjunction with applicable building codes).

Source: County of Los Angeles 2015

County of Los Angeles Code of Ordinances

Chapter 12.08, *Noise Control*, of the LACC seeks to control unnecessary, excessive and annoying noise and vibration. LACC Section 12.08.390 includes exterior noise standards shown in Table 5.

Table 5 Exterior Noise Standards

Noise Zone	Designated Noise Zone Land Use	Time Interval	Exterior Noise Level (dBA Leq)
I	Noise sensitive area	Anytime	45
II	Residential properties	10:00 p.m. to 7:00 a.m. (nighttime)	45
		7:00 a.m. to 10:00 p.m. (daytime)	50
III	Commercial properties	10:00 p.m. to 7:00 p.m. (nighttime)	55
		7:00 a.m. to 10:00 p.m. (daytime)	60

Source: County of Los Angeles 2018, LACC Section 12.08.390

LACC Section 12.08.440 prohibits the operation of any tools or equipment used in construction, drilling, repair, alteration or demolition work between weekday hours of 7:00 p.m. and 7:00 a.m., or any time on Sundays or holidays such that the sound creates a noise disturbance across a residential or commercial real-property line, except for emergency work by public service utilities or by variance issued by the health officer. The maximum noise levels for nonscheduled, intermittent, short-term operation (less than 10 days) of mobile equipment during construction activities are shown in Table 6.

Table 6 Maximum Noise Levels for Short-Term Mobile Equipment Noise

	Single-family Residential (Leq) (dBA)	Multi-family Residential (Leq) (dBA)	Semi-residential/ Commercial (Leq) (dBA)
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	75	80	85
Daily, 8:00 p.m. to 7:00 a.m. and all day Sunday and legal holidays	60	64	70

Source: County of Los Angeles 2018, LACC Section 12.08.440

Maximum noise levels for repetitively scheduled and relatively long-term operation (periods of 10 days or more) for stationary equipment during construction are shown in Table 7.

Table 7 Maximum Noise Levels for Stationary Equipment Noise

	Single-family Residential (Leq) (dBA)	Multi-family Residential (Leq) (dBA)	Semi-residential/ Commercial (Leq) (dBA)
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	60	65	70
Daily, 8:00 p.m. to 7:00 a.m. and all day Sunday and legal holidays	50	55	60

Source: County of Los Angeles 2018, LACC Section 12.08.440

LACC Section 12.08.440(C) also states all mobile or stationary internal-combustion-engine powered equipment or machinery shall be equipped with suitable exhaust and air-intake silencers in proper working order. LACC Section 12.08.560 establishes a construction and operational vibration perception threshold of 0.01 inches per section (in/sec) over the range of 1 to 100 Hertz, which is approximately 68 VdB.

3 Methodology

3.1 Construction Noise

Construction noise was estimated using the FHWA Roadway Construction Noise Model (RCNM) (2006). RCNM predicts construction noise levels for a variety of construction operations based on empirical data and the application of acoustical propagation formulas. Using RCNM, construction noise levels were estimated at noise sensitive receivers near the project site. RCNM provides reference noise levels for standard construction equipment, with an attenuation of 6 dBA per doubling of distance for stationary equipment.

For construction noise assessment, construction equipment can be considered to operate in two modes: stationary and mobile. As a rule, stationary equipment operates in a single location for one or more days at a time, with either fixed-power operation (e.g., pumps, generators, and compressors), or with variable noise operation (e.g., pile drivers, rock drills, and pavement breakers). Mobile equipment moves around the construction site with power applied in cyclic fashion, such as bulldozers, graders, and loaders (FTA 2018). Noise impacts from stationary equipment are assessed from the center of the equipment, while noise impacts for mobile construction equipment are assessed from the center of the equipment activity area (e.g., construction site). For linear construction, such as a roadway or pipeline, construction noise is assessed from the centerline of the alignment based on the distance worked in an hour.

Variation in power imposes additional complexity in characterizing the noise source level from construction equipment. Power variation is accounted for by describing the noise at a reference distance from the equipment operating at full power and adjusting it based on the duty cycle of the activity to determine the L_{eq} of the operation (FHWA 2018).

Each phase of construction has a specific equipment mix, depending on the work to be accomplished during that phase. Each phase also has its own noise characteristics; some will have higher continuous noise levels than others, and some have high-impact noise levels. The maximum hourly L_{eq} of each phase is determined by combining the L_{eq} contributions from each piece of equipment used in that phase (FHWA 2018). In typical construction projects, grading activities generate the highest noise levels, as grading involves the largest equipment and covers the greatest area.

Typical heavy construction equipment during project grading and site preparation would include bulldozers, excavators, front-end loaders, graders, and stationary equipment, such as compressors and generators. It is assumed that diesel engines would power all construction equipment. For assessment purposes, and to be conservative, the loudest hour has been used for assessment. Noise levels are based on a loader, a dozer, an excavator, and a generator operating simultaneously. Using the FHWA Roadway Construction Noise Model (RCNM) to estimate noise associated with construction equipment maximum hourly noise levels are calculated to be 83 dBA L_{eq} at 50 feet, as measured from the center of the construction site or activity. RCNM Calculations are included in Appendix B.

Project construction is estimated to occur over 20 months. Construction phases would include site preparation, grading, building construction, architectural coating, and paving of the project site. Construction would not require any blasting or pile driving.

3.2 Groundborne Vibration

The proposed project does not include any substantial vibration sources associated with operation. Thus, construction activities have the greatest potential to generate ground-borne vibration affecting nearby receivers, especially during grading and excavation of the project site. The greatest vibratory sources during construction within the project vicinity would be bulldozers, excavators, and loaded trucks. Neither blasting nor pile driving would be required for construction of the proposed project. Construction vibration estimates are based on vibration levels reported by Caltrans and the FTA (Caltrans 2013b, FTA 2018).

A quantitative assessment of potential vibration impacts from construction activities, such as blasting, pile-driving, vibratory compaction, demolition, drilling, or excavation, may be conducted using the equations developed by Caltrans and the FTA (Caltrans 2013B, FTA 2018). Table 8 shows typical vibration levels for various pieces of construction equipment used in the assessment of construction vibration (FTA 2018).

Table 8 Vibration Levels Measured during Construction Activities

Equipment		PPV at 25 ft. (in/sec)	Approximate L_v[1] VdB at 25 ft.
Pile Driver (impact)	Upper range	1.518	112
	Typical	0.644	104
Pile Driver (sonic)	Upper range	0.734	105
	Typical	0.170	93
Hydromill (slurry wall)	Soil	0.008	66
	Rock	0.017	75
Clam Shovel Drop (slurry wall)		0.202	94
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

[1] rms velocity in decibels (VdB) re 1 micro-inch/second

Source: FTA 2018

3.3 Land Use Compatibility

Noise levels affecting the proposed project site would be primarily influenced by traffic noise from South Hacienda Boulevard. Future noise levels affecting the compatibility of the project site were estimated using the FHWA's Traffic Noise Model (TNM) traffic noise-reference levels and algorithms from the Sound Plan Essential three-dimensional noise model (Sound Plan). Traffic noise-model inputs to Sound Plan include the three- dimensional coordinates of the roadways, noise receivers, and topographic features or planned barriers that would affect noise propagation; vehicle volumes and speeds, by type of vehicle; and absorption factors.

South Hacienda Boulevard is a four-lane roadway as it passes by the project site and turns to a 2-lane roadway after it passes the project site to the south. The segment adjacent to the project has a posted speed limit of 40 miles per hour (mph).

The vehicle classification mix for South Hacienda Boulevard south of Glenmark Drive was taken from the Los Angeles County General Plan Environmental Impact Report (EIR) noise analysis. Based on this data, the current traffic vehicle-classification mix is 98.0 percent automobiles, 0.7 percent medium trucks, and 1.3 percent heavy trucks (Los Angeles County 2015). According to the County traffic counts, South Hacienda Boulevard has an existing ADT volume of 22,277. Table 9 summarizes the traffic parameters used in this analysis (Los Angeles County 2017). Based on the General Plan EIR noise analysis, traffic volumes along this segment of South Hacienda Boulevard are anticipated to drop approximately 40 percent by year 2035. Thus, the existing volume is conservative for assessing noise compatibility, as future noise levels would likely be lower.

Table 9 Roadway Traffic Parameters

				Peak Hour Traffic Mix*			
Roadway	Segment	ADT	Peak Hour	Automobiles	Medium Trucks	Heavy Trucks	Speed (mph)
S. Hacienda Blvd.	S. of Glenmark Dr.	22,277	2,228	2,186	16	29	40

* Traffic mix total may exceed peak hour volume due to rounding.

Caltrans has published a methodology to convert peak-hour noise levels to 24-hour equivalent noise levels, such as CNEL (Caltrans 2013a). To convert Peak Hour L_{eq} to CNEL, at least two corrections must be made to the peak-hour noise level. First, the peak hour traffic volumes expressed as a percentage of the ADT must be identified. Secondly, relationships for the evening penalty and the nighttime penalty must be developed; these relationships are based on the fraction of the ADT that occurs during the day, evening, and night. For calculating the CNEL, it has been assumed that peak hour traffic volumes are equal to 10 percent of the roadway ADT provided by the County (Los Angeles County 2017). The day, evening, and nighttime percentages of the ADT are based on traffic data obtained from the County General Plan EIR, on average, daytime traffic accounts for 51.8 percent of the ADT, evening traffic accounts for 32.4 percent, and nighttime accounts for 15.8 percent (Los Angeles County 2015). Using the Caltrans methodology, the CNEL is 2 dBA higher than the calculated peak hour L_{eq}. Traffic modeling results are included in Appendix C.

Exterior traffic noise levels at the building facades of the first and second floors were calculated, with the first floor receivers placed at 5 feet above ground level and second-floor receivers placed at 14 feet above ground level.

3.4 Operational Noise Sources

Noise sources associated with operation of the proposed monastery would consist of low speed on-site vehicular noise, landscaping maintenance, general conversations, mechanical equipment, e.g. heating, ventilation, and air conditioning (HVAC) units, and events hosted on the project site. Due to the distances and low noise levels associated with general site activities, on-site traffic, and landscape maintenance these sources are not considered significant and are not discussed further. The primary noise sources of concern would be the HVAC and hosted events.

On-site Noise Sources

On site-noise sources were modeled with Sound Plan. Propagation of modeled stationary noise sources was based on ISO Standard 9613-2, "Attenuation of Sound during Propagation Outdoors, Part 2: General Method of Calculation." The assessment methodology assumes that all receptors would be downwind of stationary sources. This is a worst-case assumption for total noise impacts, since, in reality, only some receptors will be downwind at any one time.

Refuse Collection and Parking Lots

The project includes a refuse collection area. Activities associated with refuse collection areas include collection vehicles entering the site, traveling toward and backing into the loading refuse collection area, idling while refuse is loaded, and then exiting the site. Normally, refuse collection is performed using refuse collection trucks with mechanical lifting forks that raise a dumpsters allow for quick loading. Refuse collection trucks are prohibited to operate in residential areas between the hours of 10:00 p.m. and 6:00 a.m. per LACC 12.08.460. LACC Section 12.08.520 establishes 86 dBA as a noise level threshold for the operation of the compacting mechanism of any motor vehicle, which compacts refuse.

Parking lot noise is typically associated with screeching tires, slamming doors, and vehicle acceleration. LACC Section 12.08.570 (I) exempts motor vehicle noise on private right-of-way and private property so long as all legal vehicles operate in a legal manner in accordance with federal, state, and local vehicle-noise regulations. Parking lot noise will not be addressed further.

Mechanical Equipment

It is not known at this time which manufacturer, brand, or model of HVAC units will be selected for use in the project. However, based on the square footages of each structure it is estimated that each building would require between 5 and 45 tons of HVAC. However, various sizes of HVAC units may be used to provide the necessary space conditioning. Based on a review of published noise level data for Carrier and Rheem HVAC Units, sound power levels could range between 72 and 77 dBA. For purposes of assessing noise levels at property lines, the 77 dBA noise level for a Rheem 5-ton unit was used. The number of units similar to what would be required to achieve the required ventilation have been identified and are provided in Table 10. Sample HVAC specification sheets are included in Appendix D.

Table 10 Modeled HVAC

Building Type	Use/Description	Estimated HVAC Tons per Building	Units per Building
A	Main Meditation Hall & Tea Room	45	9
B	Reception Building	13	3
C1	Small Meditation Hall	13	3
C2	Small Meditation Hall	26	6
D	Classroom Building	7	2
E	Multifunction Hall	23	5
F	Multifunction Hall	13	3
G	Dormitory	13	3
H	Dormitory	7	2
I	Dormitory	6	2
See Appendix D			

The HVAC units could be used on the rooftop of proposed buildings (A, B, and C) but would likely be ground-mounted for all other buildings. Please see Figure 5 for HVAC locations. All HVAC units were modeled as being three feet above the ground level or roof elevation. The HVAC units were assumed conservatively to operate at 100 percent of an hour.

Events

The project proposes to host special events, celebrations, and cultural programs that may substantially increase on-site noise levels. Special events and celebrations have the most potential to exceed noise level limits as these events may have a maximum of 400 people attending. Based on observations during noise level measurement 3, the loudest noise during events at the existing temple is generated from the use of the amplifier system. During special events at the monastery, amplifier systems are assumed to similar to the system in-use at the existing temple. Noise sources included people gathering and conversing on terraces facing the northern property line as well as amplified sound at the amphitheater stage. Please see Figure 5 for noise source and receiver locations. For modeling purposes, the amplified sound source was assigned a noise level of 83 dBA, 17 dBA above the crowd sound-power level of 66 dBA. The crowd sound level is based on a gathering of up to 300 people conversing in louder than normal tones with approximately 50 percent of the people speaking at once. As a significant portion of the project site is for residential and recreational use, it is assumed special events at the monastery would occur between 7:00 a.m. and 10:00 p.m.

Figure 5 Noise Source and Receiver Locations

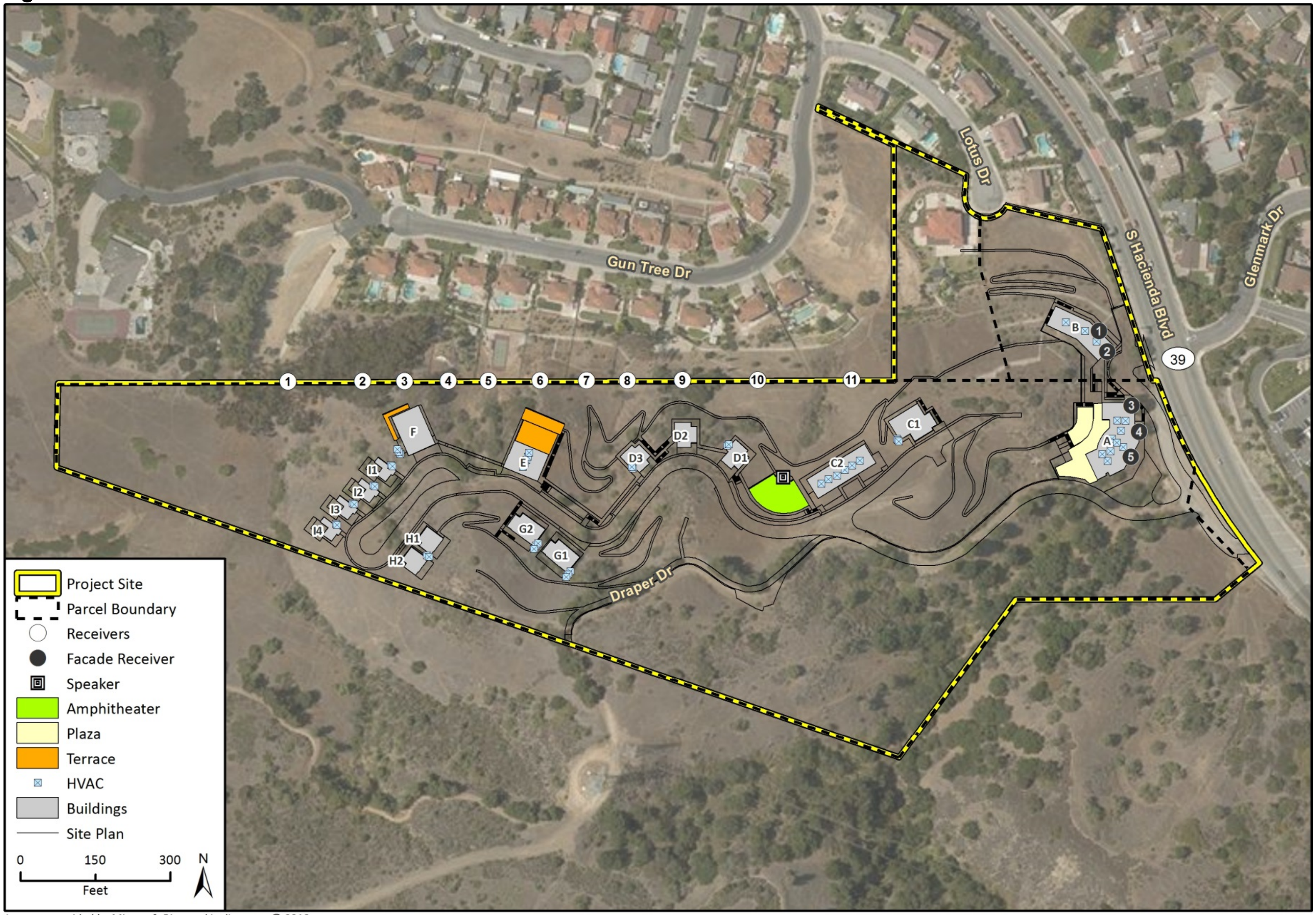

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Fig 5 Noise Source & Receiver Locations

Off-site Traffic Noise

The project would generate vehicle trips, thereby increasing traffic on local and area roadways. Linscott, Law, and Greenspan Engineers (LLG) prepared a project-specific Traffic Impact Analysis (TIA) to determine existing, future, and existing and future with project traffic conditions on area roadways (LLG 2018). Existing and existing plus project traffic volumes on South Hacienda Boulevard were developed for the assessment of off-site noise impacts from the project TIA and the County of Los Angeles average daily traffic (ADT) volume counts. Roadway noise was modeled using the FHWA TNM. Based on the TIA, on a typical weekday the project would generate an estimated 448 daily trips and up to 706 daily trips during special events. For assessing off-site traffic impacts, the analysis conservatively uses the 706 trips to determine the traffic-noise level increase.

3.5 Significance Thresholds

To determine whether a project would have a significant noise impact, the County of Los Angeles uses a modified version of Appendix G from the *CEQA Guidelines* in consideration of whether a project would result in:

1) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
    a) For noise compatibility, noise levels at noise-sensitive exterior areas exceed 65 dBA CNEL.
    b) For noise compatibility, interior noise levels in habitable noise-sensitive areas exceed 45 dBA CNEL.
2) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.
3) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
    a) Project-related traffic noise increase the ambient noise level at noise-sensitive locations by 3 dBA or more and the ambient noise levels under with-project conditions fall within the “Normally Unacceptable” or “Clearly Unacceptable” categories; or
    b) Project-related traffic noise increases the ambient noise level at noise-sensitive locations by 5 dBA or more.
4) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.
5) 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, expose people residing or working in the Project Area to excessive noise levels.
6) For a project within the vicinity of a private airstrip, expose people residing or working the Project Area to excessive noise levels

Construction Noise

According to LACC Section 12.08.440, construction noise would have a significant impact if noise levels exceed the applicable limits as shown in Table 7 during the allowed construction hours of 7:00

a.m. to 7:00 p.m. during the week. No construction is allowed between the hours of 7:00 p.m. and 7:00 a.m., on Sundays, or on holidays.

Construction Vibration

As stated in Section 2.5, *Regulatory Setting*, LACC Section 12.08.560 establishes a vibration threshold of 0.01 in/sec PPV over the range of 1 to 100 Hertz, which is approximately 68 VdB. Therefore, construction vibration impacts would be significant if vibration levels exceed 68 VdB, which is acceptable only if there are an infrequent (fewer than 30) events per day according to the FTA (2018).

Land Use Compatibility

The County has adopted noise standards that provide exterior and interior noise level limits. The proposed project entails use of the proposed buildings as a monastery with living accommodations (similar to dormitories), and the project site is in a residential neighborhood. Based on a review of the County General Plan, the proposed use would be compatible with noise levels up to 65 CNEL.

On-site noise

On-site noise sources, such as HVAC and hosted events, would be regulated by the LACC Section 12.08.390. According to LACC Section 12.08.390, the exterior noise standard for residential properties is 45 dBA L_{eq} from 10:00 p.m. to 7:00 a.m., and 50 dBA L_{eq} from 7:00 a.m. to 10:00 p.m. (Table 5).

Off-site Traffic Noise

For purposes of this analysis, a significant impact would occur if project-related traffic increases the ambient noise environment of noise-sensitive locations by 3 dB or more where the ambient noise level under future conditions is 70 dBA CNEL or greater (i.e., those with-project conditions that fall within the “Normally Unacceptable” or “Clearly Unacceptable” land use categories). Additionally, a significant impact would also occur if project-related traffic increases the ambient noise environment of noise-sensitive locations by 5 dB or more regardless of the ambient noise level under with-project conditions.

4 Impact Analysis

4.1 Construction

CEQA Noise Threshold 4
A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.
Construction lasting longer than 10 days would have a significant impact if noise levels exceed 60 dBA L_{eq} at a single-family residential property line or 70 dBA L_{eq} at the temple property line.

Nearest receivers include single-family residences adjacent to the project site to the north, single-family residences 200 feet northeast of the project site, and the Hsi Lai Temple across South Hacienda Boulevard. While the project site is adjacent to existing residential properties to the north, construction equipment would be continuously moving across the site coming near and then moving further away from individual receivers, due to the dynamic nature of construction maximum hourly noise levels are calculated from the center of the site. The residential receivers north of the project site would be as near as 100 feet and as far as 500 feet; this would result in an average distance of 300 feet from construction activity. It is a similar distance to the Hsi Lai Temple. The residential receivers located to the northeast of the project site were analyzed at a distance of 500 feet from the center of construction activity.

As discussed in the methodology, the FHWA RCNM was used to calculate noise associated with construction equipment maximum hourly noise levels are calculated to be 83 L_{eq} at 50 feet, as measured from the center of the construction site or activity. At 300 feet from these activities, i.e., the northern property line, noise levels would attenuate to approximately 67 dBA L_{eq}, and at the residences across South Hacienda Boulevard maximum hourly noise levels would attenuate to 63 dBA L_{eq} or less. RCNM Calculations are included in Appendix C. This would exceed the City's maximum hourly limit of 60 dBA L_{eq} at single-family residential uses the, and thus the project would require noise abatement measures.

Construction Noise Mitigation Measure

A barrier erected along the northern and eastern project site boundaries, with a height of 10 feet above ground level would reduce maximum hourly noise levels from 55 dBA L_{eq} to 59 dBA L_{eq} at all off-site receiver locations. Barrier calculations are provided in Appendix C. Therefore, the measure below is required to reduce project impacts to less than significant levels. .

N-1 Construction Noise Reduction

The applicant, or their designated representative, will construct a temporary noise barrier along the northern and eastern limits of construction or along the northern and eastern property lines. The barrier must be of sufficient height to block the lines of sight of surrounding receivers to construction activities and shall have a minimum height of 10 feet above ground elevation. The noise barrier will be constructed of material with a minimum weight of 2 pounds per square foot with no gaps of perforations. Noise barriers may be constructed of, but are not limited to, 5/8-inch plywood, 5/8-inch oriented strand board, or hay bales.

4.2 Vibration

CEQA Noise Threshold 2

Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

Project construction or operation activities generates vibrations in excess of 0.01 in/sec PPV, or 68 VdB at a structure.

Certain types of construction equipment can generate high levels of groundborne vibration. Construction of the proposed project would utilize vibration equipment including dozers and rollers during most construction phases. As shown in Table 11, groundborne vibration from construction equipment would not exceed the County's threshold of 0.01 in./sec. PPV (68 VdB), at distances of 175 feet, which the distance between on-site construction equipment and the nearest structure with sensitive receivers (15760 Gun Tree Drive). Vibration from construction activities would only occur during daytime as construction activities are prohibited between the hours of 7:00 p.m. and 7:00 a.m., per LACC Section 12.08.440.

Table 11 Vibration Levels at Sensitive Receivers

Equipment	VdB at 175 feet	in./sec. PPV at 175 feet
Bulldozer (large)	68	0.010
Loaded Trucks	64	0.009
Los Angeles County Threshold	68	0.01
Threshold Exceeded?	No	No

See Appendix E for vibration analysis worksheets.
Source: FTA 2018

As shown in Table 11, construction of the proposed monastery would not generate significant groundborne vibrations from heavy equipment operations. Therefore, construction-related vibration impacts would be less than significant. The project does not include any substantial vibration sources associated with operation. Therefore, operational vibration impacts would be less than significant.

4.3 Land Use Compatibility

CEQA Noise Threshold 1

Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
For noise compatibility, noise levels at noise-sensitive exterior areas exceed 65 CNEL.
For noise compatibility, interior noise levels in habitable noise-sensitive areas exceed 45 CNEL.

Following the methodology and reference noise levels discussed in Section 3.1, ground-floor noise contours from traffic on roadways near the project site was modeled. Modeled noise contours are shown in Figure 6 and noise levels at the façade of Building A are included in Table 12. Traffic noise from South Hacienda Boulevard would result in noise levels up to 63 CNEL at the façade of Buildings A and B. This is considered a compatible noise level for the proposed uses in Buildings A and B. All other buildings would be exposed to noise levels of 60 CNEL or less. See Attachment 3 for Sound Plan data.

Table 12 Traffic Noise Levels

		Noise Level (CNEL)	
Receiver	Description	1st Floor	2nd Floor
1	Northeastern Façade	59	61
2	Eastern Façade	61	63
3	Eastern Façade	61	63
4	Eastern Façade	59	61
5	Eastern Façade	63	63

As shown, all residential and recreational uses on site would be exposed to noise levels of less than 65 CNEL. Impacts associated with noise and land use compatibility would be less than significant.

Standard construction techniques required under the California Building Code typically achieve a minimum 25-dBA reduction from exterior sources at interior locations, when the windows are in a closed position. Thus, with exterior noise levels of 65 CNEL interior noise levels for the project would not exceed the State and County's interior noise standard of 45 CNEL. Therefore, interior noise impacts would be less than significant.

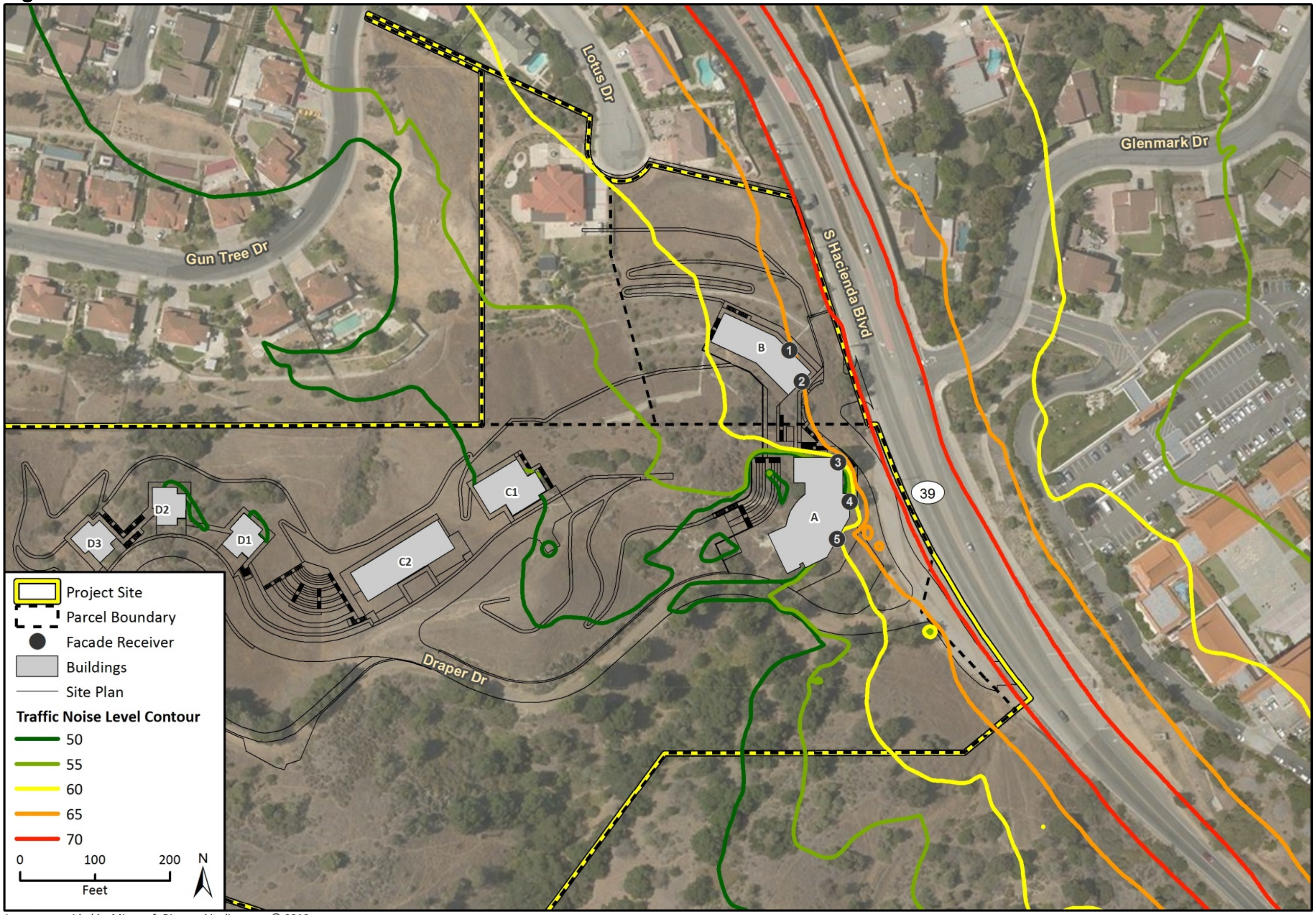
4.4 Operation Noise Sources

CEQA Appendix G Noise Threshold 1

Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

The proposed buildings and uses would intensify the project site compared to the existing conditions. Existing land uses near the project site may periodically be subject to noise associated with operation of the project, which include events that would occur at the proposed monastery.

Figure 6 Traffic Noise Level Contours



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On-site Operational Noise

The proposed monastery would host educational programs and occasional smaller events coinciding with the existing Hsi Lai Temple events. The dining facilities, classrooms, offices, and meditation halls would be operational year round and may host up to 150 people for cultural/community events. Some of the dormitory-style facilities may also be used for overnight guests.

Noise sources associated with operation of the proposed monastery would include people gatherings on and speaking on terraces; organized meditation with speaking events at the main plaza seating area and amphitheater; occasional events that would host up to 400 people on the project site; and HVAC equipment.

For modeling on-site noise sources, assumptions for stationary equipment, such as rooftop HVAC systems, are provided in Section 3.4. As a worst case daytime (7:00 a.m. to 10:00 p.m.) scenario, all HVAC were modeled operating at 100 percent, with activities on all terraces facing nearby properties, and an amplified sound system located at the stage of the amphitheater. For assessing nighttime (10:00 p.m. to 7:00 a.m.) noise levels, it was assumed all HVAC would be operating but that events no would occur during this period, thus no activities were assumed for the terraces, plaza, or amphitheater after 10:00 p.m.

On-site operational noise level contours are provided in Figure 7 and Figure 8 for daytime and nighttime, respectively. Noise levels at receivers located along the northern property lines are shown in Table 13. As shown in Figure 7 and Table 13, noise levels during daytime activities with all potential sources active during the same hour would not exceed the County property-line noise level limits of 50 dBA L_{eq}. Similarly, as shown in Figure 8 and Table 13 the more limited nighttime activities would also comply with the lower 40 dBA L_{eq}. Therefore, future on-site noise sources would result in less than significant impacts.

Table 13 On-site Noise Source Model Summary

Receiver	Address	Daytime (All Sources)	Nighttime (HVAC Only)
1	15700 Gun Tree Drive	20	18
2	15706 Gun Tree Drive	20	15
3	15712 Gun Tree Drive	23	14
4	15720 Gun Tree Drive	40	22
5	15726 Gun Tree Drive	38	15
6	15736 Gun Tree Drive	43	24
7	15746 Gun Tree Drive	34	25
8	15748 Gun Tree Drive	32	22
9	15745 Gun Tree Drive	34	23
10	15760 Gun Tree Drive	42	29
11	15762 Gun Tree Drive	43	24

Figure 7 On-site, Daytime Noise Level Contours

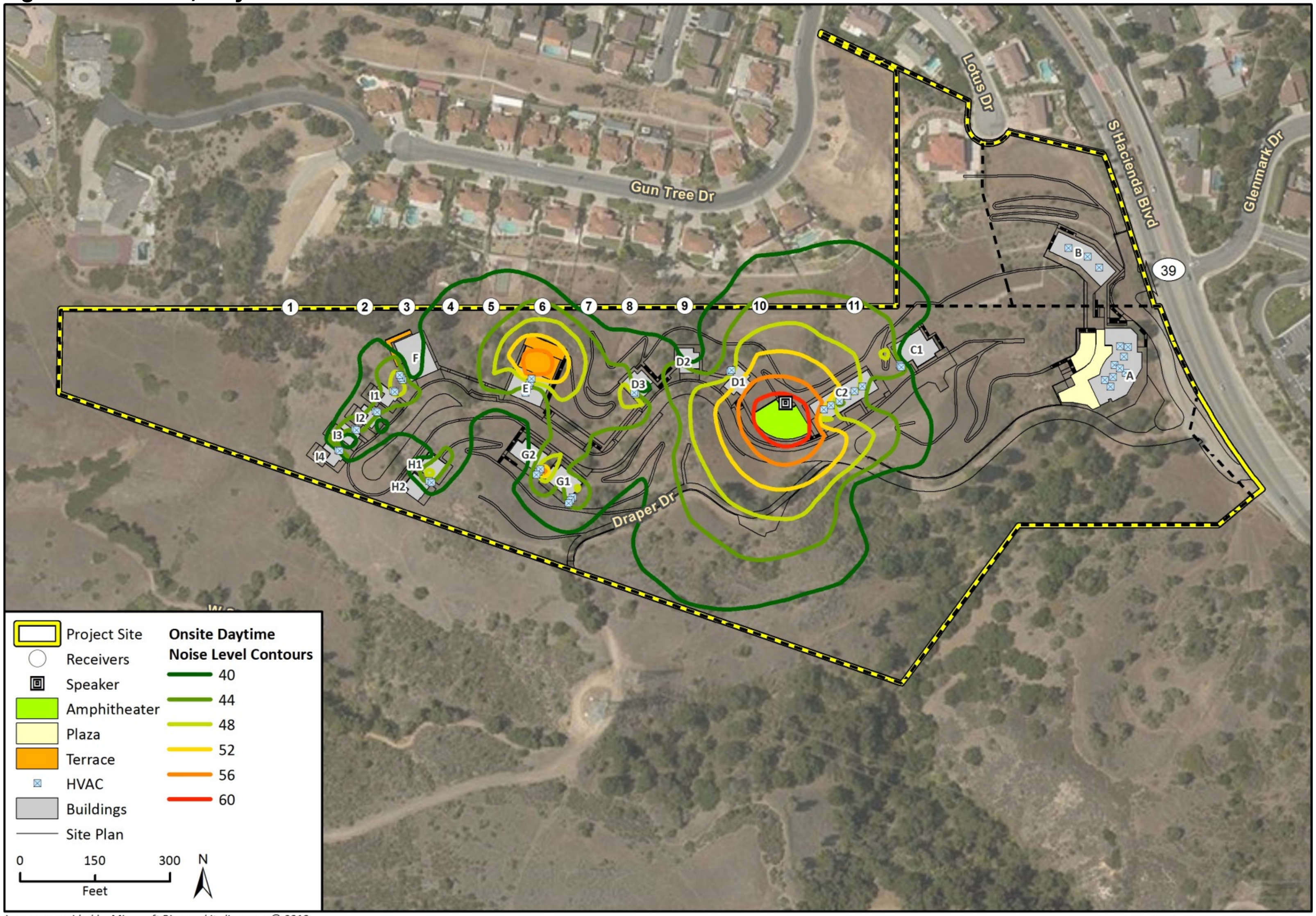

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Figure 8 On-site, Nighttime Noise Level Contour

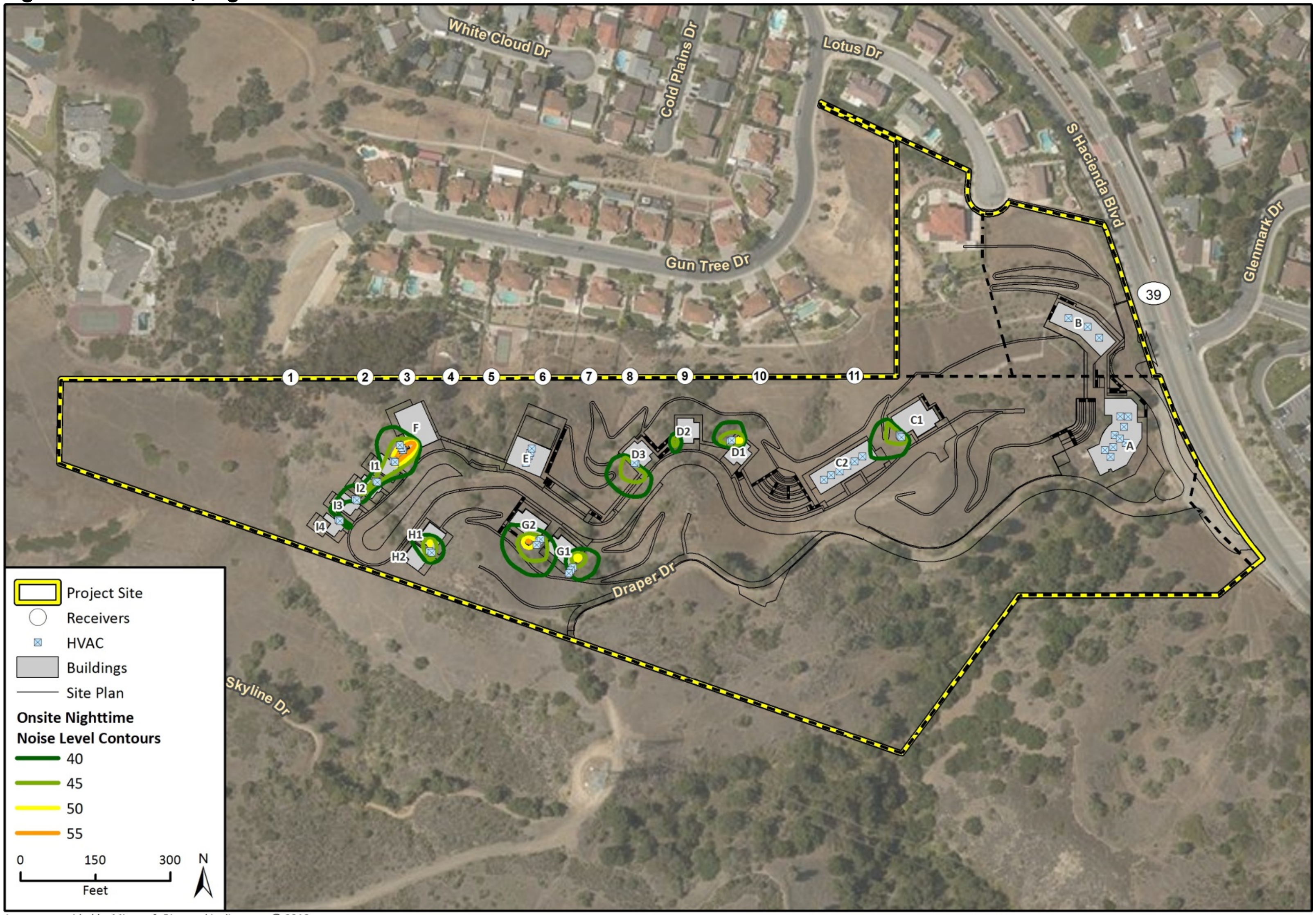

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Fig 8 Onsite Nighttime Noise Level Contours

Off-site Traffic Noise

The project would generate new vehicle trips that would use roadways. Based on the project traffic report, the project would generate a maximum of 706 trips above existing conditions. Traffic noise was modeled using the FHWA TNM model for existing and existing plus project ADT volumes on South Hacienda Boulevard. Table 14 summarizes the traffic noise modeling results. As shown in Table 14, existing noise level would increase by approximately 1.4 dBA, which would not exceed the 3 dBA criteria for off-site traffic noise impacts. Therefore, the project would not result in a substantial permanent increase in ambient noise levels above levels existing without the project. Impacts would be less than significant.

Table 14 Comparison of Existing and Estimated Traffic Volumes and Noise

	Roadway Noise (dBA Ldn)				
Modeled Location	Existing	Existing + Project	Noise Level Increase	Noise Increase Criteria (dBA)	Exceed Criteria?
South Hacienda Boulevard	70.0	71.4	1.4	3	No

See Appendix C for FHWA TNM worksheets.

4.5 Airport Noise Impacts

CEQA Appendix G Noise Threshold 5

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 expose people residing or working in the project area to excessive noise levels *(No Impact)*.

CEQA Appendix G Noise Threshold 6

For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise *(No Impact)*.

The Fullerton Municipal Airport is located approximately 9 miles south of the project site in Orange County. The project site is not located in an Airport Influence Area (Orange County 2004). The project site is not in near a private airport. There would be no impact.

5 Conclusions and Recommendations

The project would generate both temporary construction-related noise and long-term noise associated with operation of the project. Construction noise would exceed the County's standard at adjacent residences, and could be as high as 67 dBA L_{eq} at the nearest residential receiver. Mitigation Measure N-1 is required to reduce construction noise exposure at nearby sensitive receivers to less than significant levels.

The project would generate groundborne vibration during construction. Groundborne vibration would not exceed the County's threshold of 68 VdB at a distance of 175 feet, i.e., the nearest receiver. Therefore, no construction-related vibration impacts would be less than significant.

Exterior noise levels at Building A, nearest South Hacienda Boulevard, would be as high as 65 CNEL. This is considered compatible for the proposed uses in Building A and all other buildings would be exposed to noise levels of 60 CNEL or less. Standard construction, with windows in a closed position, would achieve a 25-dBA reduction in exterior noise level at interior locations. Thus, interior noise levels for the project would not exceed the State or County's interior noise standard of 45 dBA CNEL. Therefore, no additional recommendation measures are necessary to reduce interior noise levels for the project and impacts would be less than significant.

The proposed project would generate a maximum of 706 daily trips during special events. This maximum traffic increase would result in a 1.4 dBA increase in off-site traffic noise levels. This is below the County most conservative threshold of 3 dBA, therefore, off-site traffic noise increase would be less than significant.

The nearest airport is the Fullerton Airport, approximately 9 miles south of the project site. The project would not be affected by aircraft operating from this airport and would not affect the operations at the airport; therefore, impacts would be less than significant.

Regulatory Compliance Measures

The following regulatory compliance measures were considered as part of the evaluation of construction noise.

RCM-2 Construction Hours

The project shall comply with LACC Section 12.08.440, which restricts construction activities to between 7:00 a.m. and 7:00 p.m. Monday through Friday, and prohibits such activities any time on Sundays or holidays.

RCM-3 Construction Notification

The project shall comply with LACC Section 16.92.070, which requires a construction site notice to be provided to the director of public works for review and approval no later than 20 days prior to commencement of construction activities. At minimum, the notice shall be provided to impacted residents and occupants in the construction area at least 48 hours prior to commencement of construction activities, and may take the form of door hangers. The notification shall include the following information at minimum: dates and times of construction, and the name and phone number of the contractor or owner or owner’s agent.

Mitigation Measures

The following measure is required to reduce construction noise impacts to less than significant levels:

N-1 Construction Noise Reduction

The Applicant, or their designated representative, will construct a temporary noise barrier along the northern and eastern limits of construction or along the northern and eastern property lines. The barrier must be of sufficient height to block the lines of sight of surrounding receivers to construction activities and shall have a minimum height of 10 feet above ground elevation. The noise barrier will be constructed of material with a minimum weight of two pounds per square foot with no gaps of perforations. Noise barriers may be constructed of, but are not limited to, 0.625-inch plywood, 0.625-inch oriented strand board, or hay bales.

Implementation of this mitigation measure would reduce construction noise at nearby residential properties to a maximum hourly noise level of 59 dBA L_{eq}. Therefore, with incorporation of N-1, construction noise impacts would be less than significant.

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Appendix A

Noise Measurement Data

- Freq Weight : A
- Time Weight : FAST
- Level Range : 40-100
- Max dB : 66.8 - 2018/11/01 16:53:41
- Level Range : 40-100
- SEL : 79.3
- Leq : 49.8
-

No.s	Date Time	(dB)
1	2018/11/01 16:45:02	45.3
2	2018/11/01 16:45:03	44.7
3	2018/11/01 16:45:04	45.2
4	2018/11/01 16:45:05	45.2
5	2018/11/01 16:45:06	44.4
6	2018/11/01 16:45:07	45.4
7	2018/11/01 16:45:08	45.4
8	2018/11/01 16:45:09	45.0
9	2018/11/01 16:45:10	46.2
10	2018/11/01 16:45:11	46.2
11	2018/11/01 16:45:12	44.7
12	2018/11/01 16:45:13	45.5
13	2018/11/01 16:45:14	46.1
14	2018/11/01 16:45:15	46.9
15	2018/11/01 16:45:16	46.5
16	2018/11/01 16:45:17	44.9
17	2018/11/01 16:45:18	45.4
18	2018/11/01 16:45:19	45.1
19	2018/11/01 16:45:20	46.3
20	2018/11/01 16:45:21	46.1
21	2018/11/01 16:45:22	47.2
22	2018/11/01 16:45:23	45.4
23	2018/11/01 16:45:24	44.8
24	2018/11/01 16:45:25	46.3
25	2018/11/01 16:45:26	46.3
26	2018/11/01 16:45:27	45.4
27	2018/11/01 16:45:28	45.8
28	2018/11/01 16:45:29	46.2
29	2018/11/01 16:45:30	45.0
30	2018/11/01 16:45:31	44.1
31	2018/11/01 16:45:32	44.0
32	2018/11/01 16:45:33	43.8
33	2018/11/01 16:45:34	44.2
34	2018/11/01 16:45:35	44.3
35	2018/11/01 16:45:36	44.5
36	2018/11/01 16:45:37	45.4
37	2018/11/01 16:45:38	44.3
38	2018/11/01 16:45:39	44.0
39	2018/11/01 16:45:40	44.2
40	2018/11/01 16:45:41	45.5
41	2018/11/01 16:45:42	45.2
42	2018/11/01 16:45:43	45.2
43	2018/11/01 16:45:44	44.3
44	2018/11/01 16:45:45	45.1
45	2018/11/01 16:45:46	45.3
46	2018/11/01 16:45:47	49.0
47	2018/11/01 16:45:48	47.5
48	2018/11/01 16:45:49	48.2
49	2018/11/01 16:45:50	46.9
50	2018/11/01 16:45:51	46.8
51	2018/11/01 16:45:52	48.5
52	2018/11/01 16:45:53	46.6
53	2018/11/01 16:45:54	47.6
54	2018/11/01 16:45:55	49.5
55	2018/11/01 16:45:56	50.1
56	2018/11/01 16:45:57	54.6
57	2018/11/01 16:45:58	51.2
58	2018/11/01 16:45:59	52.1
59	2018/11/01 16:46:00	59.1
60	2018/11/01 16:46:01	55.7
61	2018/11/01 16:46:02	54.5
62	2018/11/01 16:46:03	51.9
63	2018/11/01 16:46:04	55.5
64	2018/11/01 16:46:05	56.0
65	2018/11/01 16:46:06	56.0
66	2018/11/01 16:46:07	57.7
67	2018/11/01 16:46:08	56.5
68	2018/11/01 16:46:09	58.1
69	2018/11/01 16:46:10	55.9
70	2018/11/01 16:46:11	57.7
71	2018/11/01 16:46:12	56.0
72	2018/11/01 16:46:13	54.7
73	2018/11/01 16:46:14	54.8
74	2018/11/01 16:46:15	54.3
75	2018/11/01 16:46:16	52.4
76	2018/11/01 16:46:17	54.0
77	2018/11/01 16:46:18	51.9
78	2018/11/01 16:46:19	51.1
79	2018/11/01 16:46:20	51.5
80	2018/11/01 16:46:21	50.4
81	2018/11/01 16:46:22	49.5
82	2018/11/01 16:46:23	50.4
83	2018/11/01 16:46:24	46.0
84	2018/11/01 16:46:25	49.3
85	2018/11/01 16:46:26	47.8

86	2018/11/01 16:46:27	46.9
87	2018/11/01 16:46:28	50.1
88	2018/11/01 16:46:29	45.1
89	2018/11/01 16:46:30	47.8
90	2018/11/01 16:46:31	45.4
91	2018/11/01 16:46:32	44.2
92	2018/11/01 16:46:33	44.2
93	2018/11/01 16:46:34	44.9
94	2018/11/01 16:46:35	46.0
95	2018/11/01 16:46:36	45.5
96	2018/11/01 16:46:37	44.0
97	2018/11/01 16:46:38	43.4
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101	2018/11/01 16:46:42	44.3
102	2018/11/01 16:46:43	44.0
103	2018/11/01 16:46:44	43.8
104	2018/11/01 16:46:45	43.9
105	2018/11/01 16:46:46	44.3
106	2018/11/01 16:46:47	44.6
107	2018/11/01 16:46:48	44.4
108	2018/11/01 16:46:49	43.8
109	2018/11/01 16:46:50	44.4
110	2018/11/01 16:46:51	44.0
111	2018/11/01 16:46:52	44.3
112	2018/11/01 16:46:53	43.5
113	2018/11/01 16:46:54	44.6
114	2018/11/01 16:46:55	43.6
115	2018/11/01 16:46:56	44.5
116	2018/11/01 16:46:57	45.1
117	2018/11/01 16:46:58	44.1
118	2018/11/01 16:46:59	44.6
119	2018/11/01 16:47:00	44.0
120	2018/11/01 16:47:01	43.3
121	2018/11/01 16:47:02	43.6
122	2018/11/01 16:47:03	44.5
123	2018/11/01 16:47:04	43.8
124	2018/11/01 16:47:05	43.5
125	2018/11/01 16:47:06	44.0
126	2018/11/01 16:47:07	44.4
127	2018/11/01 16:47:08	44.7
128	2018/11/01 16:47:09	51.2
129	2018/11/01 16:47:10	45.6
130	2018/11/01 16:47:11	46.0
131	2018/11/01 16:47:12	45.7
132	2018/11/01 16:47:13	45.1
133	2018/11/01 16:47:14	45.6
134	2018/11/01 16:47:15	48.4
135	2018/11/01 16:47:16	48.2
136	2018/11/01 16:47:17	45.1
137	2018/11/01 16:47:18	45.0
138	2018/11/01 16:47:19	45.2
139	2018/11/01 16:47:20	45.9
140	2018/11/01 16:47:21	45.5
141	2018/11/01 16:47:22	45.1
142	2018/11/01 16:47:23	45.0
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597	2018/11/01 16:54:58	47.0
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599	2018/11/01 16:55:00	45.2
600	2018/11/01 16:55:01	47.4
601	2018/11/01 16:55:02	48.3
602	2018/11/01 16:55:03	46.3
603	2018/11/01 16:55:04	51.1
604	2018/11/01 16:55:05	52.8
605	2018/11/01 16:55:06	49.6
606	2018/11/01 16:55:07	53.3
607	2018/11/01 16:55:08	54.5
608	2018/11/01 16:55:09	53.6
609	2018/11/01 16:55:10	53.1
610	2018/11/01 16:55:11	50.7
611	2018/11/01 16:55:12	53.6
612	2018/11/01 16:55:13	51.5
613	2018/11/01 16:55:14	50.7
614	2018/11/01 16:55:15	54.3
615	2018/11/01 16:55:16	54.3
616	2018/11/01 16:55:17	56.0
617	2018/11/01 16:55:18	56.2
618	2018/11/01 16:55:19	52.0
619	2018/11/01 16:55:20	55.8
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621	2018/11/01 16:55:22	54.5
622	2018/11/01 16:55:23	54.3
623	2018/11/01 16:55:24	49.1
624	2018/11/01 16:55:25	54.2
625	2018/11/01 16:55:26	52.9
626	2018/11/01 16:55:27	50.9
627	2018/11/01 16:55:28	50.1
628	2018/11/01 16:55:29	51.4
629	2018/11/01 16:55:30	47.4
630	2018/11/01 16:55:31	53.2
631	2018/11/01 16:55:32	49.2
632	2018/11/01 16:55:33	50.9
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637	2018/11/01 16:55:38	47.1
638	2018/11/01 16:55:39	46.9
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641	2018/11/01 16:55:42	47.0
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643	2018/11/01 16:55:44	45.3
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647	2018/11/01 16:55:48	48.6
648	2018/11/01 16:55:49	45.7
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651	2018/11/01 16:55:52	47.4
652	2018/11/01 16:55:53	47.1
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654	2018/11/01 16:55:55	45.8
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656	2018/11/01 16:55:57	45.4
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659	2018/11/01 16:56:00	45.0
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668	2018/11/01 16:56:09	48.1
669	2018/11/01 16:56:10	45.7
670	2018/11/01 16:56:11	47.4
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678	2018/11/01 16:56:19	49.1
679	2018/11/01 16:56:20	48.2

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682	2018/11/01	16:56:23	48.0
683	2018/11/01	16:56:24	47.6
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692	2018/11/01	16:56:33	48.5
693	2018/11/01	16:56:34	48.2
694	2018/11/01	16:56:35	46.9
695	2018/11/01	16:56:36	46.6
696	2018/11/01	16:56:37	46.9
697	2018/11/01	16:56:38	45.6
698	2018/11/01	16:56:39	45.6
699	2018/11/01	16:56:40	45.4
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703	2018/11/01	16:56:44	46.1
704	2018/11/01	16:56:45	45.0
705	2018/11/01	16:56:46	45.6
706	2018/11/01	16:56:47	45.4
707	2018/11/01	16:56:48	46.9
708	2018/11/01	16:56:49	45.1
709	2018/11/01	16:56:50	45.1
710	2018/11/01	16:56:51	45.4
711	2018/11/01	16:56:52	45.4
712	2018/11/01	16:56:53	46.3
713	2018/11/01	16:56:54	46.0
714	2018/11/01	16:56:55	46.7
715	2018/11/01	16:56:56	46.2
716	2018/11/01	16:56:57	45.9
717	2018/11/01	16:56:58	46.1
718	2018/11/01	16:56:59	46.2
719	2018/11/01	16:57:00	48.4
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722	2018/11/01	16:57:03	47.6
723	2018/11/01	16:57:04	52.0
724	2018/11/01	16:57:05	49.4
725	2018/11/01	16:57:06	50.2
726	2018/11/01	16:57:07	49.1
727	2018/11/01	16:57:08	50.4
728	2018/11/01	16:57:09	49.3
729	2018/11/01	16:57:10	51.1
730	2018/11/01	16:57:11	51.6
731	2018/11/01	16:57:12	52.0
732	2018/11/01	16:57:13	51.6
733	2018/11/01	16:57:14	51.5
734	2018/11/01	16:57:15	51.1
735	2018/11/01	16:57:16	51.2
736	2018/11/01	16:57:17	51.1
737	2018/11/01	16:57:18	51.5
738	2018/11/01	16:57:19	52.8
739	2018/11/01	16:57:20	51.0
740	2018/11/01	16:57:21	51.9
741	2018/11/01	16:57:22	50.1
742	2018/11/01	16:57:23	53.0
743	2018/11/01	16:57:24	50.5
744	2018/11/01	16:57:25	49.9
745	2018/11/01	16:57:26	50.1
746	2018/11/01	16:57:27	49.7
747	2018/11/01	16:57:28	48.7
748	2018/11/01	16:57:29	47.7
749	2018/11/01	16:57:30	50.7
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753	2018/11/01	16:57:34	48.0
754	2018/11/01	16:57:35	47.2
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756	2018/11/01	16:57:37	46.7
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758	2018/11/01	16:57:39	46.0
759	2018/11/01	16:57:40	45.4
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761	2018/11/01	16:57:42	45.5
762	2018/11/01	16:57:43	44.7
763	2018/11/01	16:57:44	45.4
764	2018/11/01	16:57:45	45.5
765	2018/11/01	16:57:46	45.4
766	2018/11/01	16:57:47	44.9
767	2018/11/01	16:57:48	44.7
768	2018/11/01	16:57:49	44.3
769	2018/11/01	16:57:50	44.8
770	2018/11/01	16:57:51	44.5
771	2018/11/01	16:57:52	44.3
772	2018/11/01	16:57:53	46.6
773	2018/11/01	16:57:54	45.5
774	2018/11/01	16:57:55	45.3
775	2018/11/01	16:57:56	44.8
776	2018/11/01	16:57:57	44.6
777	2018/11/01	16:57:58	45.8
778	2018/11/01	16:57:59	45.5

779	2018/11/01 16:58:00	44.6
780	2018/11/01 16:58:01	44.4
781	2018/11/01 16:58:02	52.2
782	2018/11/01 16:58:03	46.2
783	2018/11/01 16:58:04	45.0
784	2018/11/01 16:58:05	44.5
785	2018/11/01 16:58:06	44.1
786	2018/11/01 16:58:07	45.0
787	2018/11/01 16:58:08	44.8
788	2018/11/01 16:58:09	45.2
789	2018/11/01 16:58:10	44.2
790	2018/11/01 16:58:11	44.9
791	2018/11/01 16:58:12	44.4
792	2018/11/01 16:58:13	44.0
793	2018/11/01 16:58:14	44.1
794	2018/11/01 16:58:15	44.4
795	2018/11/01 16:58:16	44.1
796	2018/11/01 16:58:17	44.0
797	2018/11/01 16:58:18	44.4
798	2018/11/01 16:58:19	45.3
799	2018/11/01 16:58:20	58.6
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801	2018/11/01 16:58:22	46.5
802	2018/11/01 16:58:23	44.8
803	2018/11/01 16:58:24	44.5
804	2018/11/01 16:58:25	47.8
805	2018/11/01 16:58:26	44.2
806	2018/11/01 16:58:27	44.2
807	2018/11/01 16:58:28	43.8
808	2018/11/01 16:58:29	43.9
809	2018/11/01 16:58:30	44.6
810	2018/11/01 16:58:31	44.6
811	2018/11/01 16:58:32	44.3
812	2018/11/01 16:58:33	46.5
813	2018/11/01 16:58:34	46.7
814	2018/11/01 16:58:35	45.1
815	2018/11/01 16:58:36	46.1
816	2018/11/01 16:58:37	49.0
817	2018/11/01 16:58:38	45.7
818	2018/11/01 16:58:39	46.5
819	2018/11/01 16:58:40	46.1
820	2018/11/01 16:58:41	47.7
821	2018/11/01 16:58:42	47.8
822	2018/11/01 16:58:43	48.1
823	2018/11/01 16:58:44	49.6
824	2018/11/01 16:58:45	51.5
825	2018/11/01 16:58:46	52.7
826	2018/11/01 16:58:47	50.2
827	2018/11/01 16:58:48	50.2
828	2018/11/01 16:58:49	51.5
829	2018/11/01 16:58:50	51.8
830	2018/11/01 16:58:51	59.1
831	2018/11/01 16:58:52	52.1
832	2018/11/01 16:58:53	51.3
833	2018/11/01 16:58:54	52.7
834	2018/11/01 16:58:55	55.5
835	2018/11/01 16:58:56	54.7
836	2018/11/01 16:58:57	50.9
837	2018/11/01 16:58:58	52.8
838	2018/11/01 16:58:59	53.1
839	2018/11/01 16:59:00	51.0
840	2018/11/01 16:59:01	53.8
841	2018/11/01 16:59:02	50.7
842	2018/11/01 16:59:03	53.8
843	2018/11/01 16:59:04	52.4
844	2018/11/01 16:59:05	49.3
845	2018/11/01 16:59:06	50.6
846	2018/11/01 16:59:07	51.3
847	2018/11/01 16:59:08	49.5
848	2018/11/01 16:59:09	51.7
849	2018/11/01 16:59:10	49.4
850	2018/11/01 16:59:11	47.7
851	2018/11/01 16:59:12	46.3
852	2018/11/01 16:59:13	46.2
853	2018/11/01 16:59:14	46.6
854	2018/11/01 16:59:15	46.3
855	2018/11/01 16:59:16	46.1
856	2018/11/01 16:59:17	46.7
857	2018/11/01 16:59:18	47.5
858	2018/11/01 16:59:19	46.8
859	2018/11/01 16:59:20	46.4
860	2018/11/01 16:59:21	48.5
861	2018/11/01 16:59:22	49.8
862	2018/11/01 16:59:23	50.4
863	2018/11/01 16:59:24	49.3
864	2018/11/01 16:59:25	50.1
865	2018/11/01 16:59:26	49.8
866	2018/11/01 16:59:27	47.0
867	2018/11/01 16:59:28	52.1
868	2018/11/01 16:59:29	56.7
869	2018/11/01 16:59:30	50.5
870	2018/11/01 16:59:31	46.9
871	2018/11/01 16:59:32	45.8
872	2018/11/01 16:59:33	49.6
873	2018/11/01 16:59:34	47.5
874	2018/11/01 16:59:35	48.0
875	2018/11/01 16:59:36	48.3
876	2018/11/01 16:59:37	47.3
877	2018/11/01 16:59:38	48.2

878	2018/11/01 16:59:39	47.3
879	2018/11/01 16:59:40	47.3
880	2018/11/01 16:59:41	48.4
881	2018/11/01 16:59:42	49.4
882	2018/11/01 16:59:43	45.7
883	2018/11/01 16:59:44	49.6
884	2018/11/01 16:59:45	45.8
885	2018/11/01 16:59:46	46.2
886	2018/11/01 16:59:47	45.9
887	2018/11/01 16:59:48	45.6
888	2018/11/01 16:59:49	45.5
889	2018/11/01 16:59:50	46.1
890	2018/11/01 16:59:51	45.3
891	2018/11/01 16:59:52	44.7
892	2018/11/01 16:59:53	44.7
893	2018/11/01 16:59:54	44.8
894	2018/11/01 16:59:55	45.3
895	2018/11/01 16:59:56	44.8
896	2018/11/01 16:59:57	44.7
897	2018/11/01 16:59:58	45.3
898	2018/11/01 16:59:59	45.3
899	2018/11/01 17:00:00	44.9
900	2018/11/01 17:00:01	45.1

- Freq Weight : A
- Time Weight : FAST
- Level Range : 40-100
- Max dB : 91.2 - 2018/11/01 17:18:03
- Level Range : 40-100
- SEL : 105.5
- Leq : 76.0
-

No.s	Date Time	(dB)
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2	2018/11/01 17:11:43	71.7
3	2018/11/01 17:11:44	75.1
4	2018/11/01 17:11:45	73.6
5	2018/11/01 17:11:46	69.0
6	2018/11/01 17:11:47	66.2
7	2018/11/01 17:11:48	69.8
8	2018/11/01 17:11:49	81.4
9	2018/11/01 17:11:50	80.9
10	2018/11/01 17:11:51	79.5
11	2018/11/01 17:11:52	80.1
12	2018/11/01 17:11:53	73.4
13	2018/11/01 17:11:54	77.5
14	2018/11/01 17:11:55	73.7
15	2018/11/01 17:11:56	73.6
16	2018/11/01 17:11:57	78.3
17	2018/11/01 17:11:58	72.0
18	2018/11/01 17:11:59	70.2
19	2018/11/01 17:12:00	76.3
20	2018/11/01 17:12:01	72.5
21	2018/11/01 17:12:02	72.9
22	2018/11/01 17:12:03	75.1
23	2018/11/01 17:12:04	71.5
24	2018/11/01 17:12:05	71.3
25	2018/11/01 17:12:06	76.7
26	2018/11/01 17:12:07	71.1
27	2018/11/01 17:12:08	70.3
28	2018/11/01 17:12:09	73.9
29	2018/11/01 17:12:10	73.4
30	2018/11/01 17:12:11	75.5
31	2018/11/01 17:12:12	73.7
32	2018/11/01 17:12:13	75.7
33	2018/11/01 17:12:14	80.1
34	2018/11/01 17:12:15	76.1
35	2018/11/01 17:12:16	73.9
36	2018/11/01 17:12:17	72.3
37	2018/11/01 17:12:18	74.5
38	2018/11/01 17:12:19	79.2
39	2018/11/01 17:12:20	78.7
40	2018/11/01 17:12:21	79.7
41	2018/11/01 17:12:22	79.0
42	2018/11/01 17:12:23	77.7
43	2018/11/01 17:12:24	75.8
44	2018/11/01 17:12:25	73.9
45	2018/11/01 17:12:26	73.2
46	2018/11/01 17:12:27	73.3
47	2018/11/01 17:12:28	77.8
48	2018/11/01 17:12:29	75.1
49	2018/11/01 17:12:30	74.3
50	2018/11/01 17:12:31	76.2
51	2018/11/01 17:12:32	77.6
52	2018/11/01 17:12:33	79.8
53	2018/11/01 17:12:34	77.6
54	2018/11/01 17:12:35	75.9
55	2018/11/01 17:12:36	75.7
56	2018/11/01 17:12:37	78.8
57	2018/11/01 17:12:38	80.6
58	2018/11/01 17:12:39	78.5
59	2018/11/01 17:12:40	77.6
60	2018/11/01 17:12:41	78.9
61	2018/11/01 17:12:42	74.0
62	2018/11/01 17:12:43	78.3
63	2018/11/01 17:12:44	80.3
64	2018/11/01 17:12:45	80.2
65	2018/11/01 17:12:46	81.9
66	2018/11/01 17:12:47	82.0
67	2018/11/01 17:12:48	80.6
68	2018/11/01 17:12:49	81.5
69	2018/11/01 17:12:50	78.7
70	2018/11/01 17:12:51	74.1
71	2018/11/01 17:12:52	78.7
72	2018/11/01 17:12:53	82.0
73	2018/11/01 17:12:54	74.9
74	2018/11/01 17:12:55	74.1
75	2018/11/01 17:12:56	70.9
76	2018/11/01 17:12:57	69.5
77	2018/11/01 17:12:58	69.5
78	2018/11/01 17:12:59	76.8
79	2018/11/01 17:13:00	71.9
80	2018/11/01 17:13:01	68.3
81	2018/11/01 17:13:02	66.7
82	2018/11/01 17:13:03	65.9
83	2018/11/01 17:13:04	69.4
84	2018/11/01 17:13:05	75.8
85	2018/11/01 17:13:06	68.7

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89	2018/11/01	17:13:10	58.6
90	2018/11/01	17:13:11	57.1
91	2018/11/01	17:13:12	55.3
92	2018/11/01	17:13:13	55.5
93	2018/11/01	17:13:14	56.6
94	2018/11/01	17:13:15	57.5
95	2018/11/01	17:13:16	58.4
96	2018/11/01	17:13:17	61.2
97	2018/11/01	17:13:18	63.0
98	2018/11/01	17:13:19	65.2
99	2018/11/01	17:13:20	67.0
100	2018/11/01	17:13:21	67.4
101	2018/11/01	17:13:22	71.0
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103	2018/11/01	17:13:24	71.2
104	2018/11/01	17:13:25	68.8
105	2018/11/01	17:13:26	68.0
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107	2018/11/01	17:13:28	79.1
108	2018/11/01	17:13:29	73.6
109	2018/11/01	17:13:30	75.8
110	2018/11/01	17:13:31	81.3
111	2018/11/01	17:13:32	76.4
112	2018/11/01	17:13:33	81.4
113	2018/11/01	17:13:34	79.3
114	2018/11/01	17:13:35	81.7
115	2018/11/01	17:13:36	74.3
116	2018/11/01	17:13:37	70.5
117	2018/11/01	17:13:38	67.8
118	2018/11/01	17:13:39	67.1
119	2018/11/01	17:13:40	65.7
120	2018/11/01	17:13:41	65.4
121	2018/11/01	17:13:42	66.6
122	2018/11/01	17:13:43	66.9
123	2018/11/01	17:13:44	73.2
124	2018/11/01	17:13:45	76.9
125	2018/11/01	17:13:46	71.3
126	2018/11/01	17:13:47	65.8
127	2018/11/01	17:13:48	61.4
128	2018/11/01	17:13:49	62.1
129	2018/11/01	17:13:50	60.0
130	2018/11/01	17:13:51	64.7
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582	2018/11/01	17:21:23	67.7
583	2018/11/01	17:21:24	64.7
584	2018/11/01	17:21:25	63.9
585	2018/11/01	17:21:26	58.5
586	2018/11/01	17:21:27	57.4
587	2018/11/01	17:21:28	56.5
588	2018/11/01	17:21:29	56.6
589	2018/11/01	17:21:30	58.9
590	2018/11/01	17:21:31	60.1
591	2018/11/01	17:21:32	60.3
592	2018/11/01	17:21:33	62.0
593	2018/11/01	17:21:34	66.3
594	2018/11/01	17:21:35	74.6
595	2018/11/01	17:21:36	78.6
596	2018/11/01	17:21:37	72.4
597	2018/11/01	17:21:38	74.3
598	2018/11/01	17:21:39	71.5
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600	2018/11/01	17:21:41	73.2
601	2018/11/01	17:21:42	70.5
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604	2018/11/01	17:21:45	77.8
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621	2018/11/01	17:22:02	82.0
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623	2018/11/01	17:22:04	72.9
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677	2018/11/01	17:22:58	77.2
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769	2018/11/01 17:24:30	80.8
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791	2018/11/01 17:24:52	80.4
792	2018/11/01 17:24:53	78.3
793	2018/11/01 17:24:54	78.4
794	2018/11/01 17:24:55	74.3
795	2018/11/01 17:24:56	70.6
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797	2018/11/01 17:24:58	71.9
798	2018/11/01 17:24:59	80.6
799	2018/11/01 17:25:00	80.2
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802	2018/11/01 17:25:03	83.6
803	2018/11/01 17:25:04	78.2
804	2018/11/01 17:25:05	80.2
805	2018/11/01 17:25:06	76.8
806	2018/11/01 17:25:07	78.7
807	2018/11/01 17:25:08	78.0
808	2018/11/01 17:25:09	71.6
809	2018/11/01 17:25:10	77.0
810	2018/11/01 17:25:11	80.2
811	2018/11/01 17:25:12	79.5
812	2018/11/01 17:25:13	79.1
813	2018/11/01 17:25:14	74.4
814	2018/11/01 17:25:15	67.4
815	2018/11/01 17:25:16	68.6
816	2018/11/01 17:25:17	67.8
817	2018/11/01 17:25:18	72.4
818	2018/11/01 17:25:19	79.9
819	2018/11/01 17:25:20	73.3
820	2018/11/01 17:25:21	76.3
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822	2018/11/01 17:25:23	75.4
823	2018/11/01 17:25:24	72.6
824	2018/11/01 17:25:25	69.8
825	2018/11/01 17:25:26	75.1
826	2018/11/01 17:25:27	76.0
827	2018/11/01 17:25:28	75.2
828	2018/11/01 17:25:29	79.3
829	2018/11/01 17:25:30	72.0
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831	2018/11/01 17:25:32	75.3
832	2018/11/01 17:25:33	78.9
833	2018/11/01 17:25:34	80.0
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835	2018/11/01 17:25:36	81.2
836	2018/11/01 17:25:37	75.1
837	2018/11/01 17:25:38	71.0
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839	2018/11/01 17:25:40	69.2
840	2018/11/01 17:25:41	70.9
841	2018/11/01 17:25:42	80.3
842	2018/11/01 17:25:43	79.9
843	2018/11/01 17:25:44	79.5
844	2018/11/01 17:25:45	78.7
845	2018/11/01 17:25:46	74.7
846	2018/11/01 17:25:47	68.4
847	2018/11/01 17:25:48	69.3
848	2018/11/01 17:25:49	76.3
849	2018/11/01 17:25:50	77.5
850	2018/11/01 17:25:51	77.3
851	2018/11/01 17:25:52	80.4
852	2018/11/01 17:25:53	80.9
853	2018/11/01 17:25:54	77.5
854	2018/11/01 17:25:55	75.3
855	2018/11/01 17:25:56	81.9
856	2018/11/01 17:25:57	77.4
857	2018/11/01 17:25:58	76.2
858	2018/11/01 17:25:59	72.2
859	2018/11/01 17:26:00	71.1
860	2018/11/01 17:26:01	76.1
861	2018/11/01 17:26:02	78.5
862	2018/11/01 17:26:03	74.6
863	2018/11/01 17:26:04	77.4
864	2018/11/01 17:26:05	74.9
865	2018/11/01 17:26:06	77.7
866	2018/11/01 17:26:07	78.7
867	2018/11/01 17:26:08	74.6
868	2018/11/01 17:26:09	80.1
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874	2018/11/01 17:26:15	69.7
875	2018/11/01 17:26:16	68.5
876	2018/11/01 17:26:17	69.3
877	2018/11/01 17:26:18	72.4

878	2018/11/01 17:26:19	77.9
879	2018/11/01 17:26:20	77.8
880	2018/11/01 17:26:21	75.5
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882	2018/11/01 17:26:23	72.3
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884	2018/11/01 17:26:25	75.2
885	2018/11/01 17:26:26	74.6
886	2018/11/01 17:26:27	74.5
887	2018/11/01 17:26:28	76.7
888	2018/11/01 17:26:29	76.5
889	2018/11/01 17:26:30	74.9
890	2018/11/01 17:26:31	73.2
891	2018/11/01 17:26:32	72.5
892	2018/11/01 17:26:33	74.0
893	2018/11/01 17:26:34	75.5
894	2018/11/01 17:26:35	74.2
895	2018/11/01 17:26:36	76.2
896	2018/11/01 17:26:37	80.5
897	2018/11/01 17:26:38	79.0
898	2018/11/01 17:26:39	77.9
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900	2018/11/01 17:26:41	74.9

- Freq Weight : A
- Time Weight : FAST
- Level Range : 40-100
- Max dB : 71.0 - 2018/11/25 13:31:18
- Level Range : 40-100
- SEL : 86.6
- Leq : 51.1
-

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5	2018/11/25 13:00:14	44.1
6	2018/11/25 13:00:17	41.2
7	2018/11/25 13:00:20	41.8
8	2018/11/25 13:00:23	40.5
9	2018/11/25 13:00:26	41.1
10	2018/11/25 13:00:29	40.2
11	2018/11/25 13:00:32	44.1
12	2018/11/25 13:00:35	44.8
13	2018/11/25 13:00:38	49.9
14	2018/11/25 13:00:41	51.1
15	2018/11/25 13:00:44	54.0
16	2018/11/25 13:00:47	56.8
17	2018/11/25 13:00:50	58.6
18	2018/11/25 13:00:53	60.1
19	2018/11/25 13:00:56	57.2
20	2018/11/25 13:00:59	58.0
21	2018/11/25 13:01:02	53.1
22	2018/11/25 13:01:05	51.7
23	2018/11/25 13:01:08	48.2
24	2018/11/25 13:01:11	47.9
25	2018/11/25 13:01:14	46.0
26	2018/11/25 13:01:17	43.6
27	2018/11/25 13:01:20	47.2
28	2018/11/25 13:01:23	50.8
29	2018/11/25 13:01:26	47.3
30	2018/11/25 13:01:29	40.1
31	2018/11/25 13:01:32	38.7
32	2018/11/25 13:01:35	39.3
33	2018/11/25 13:01:38	37.9
34	2018/11/25 13:01:41	37.9
35	2018/11/25 13:01:44	39.8
36	2018/11/25 13:01:47	38.3
37	2018/11/25 13:01:50	39.3
38	2018/11/25 13:01:53	49.7
39	2018/11/25 13:01:56	43.8
40	2018/11/25 13:01:59	42.6
41	2018/11/25 13:02:02	42.0
42	2018/11/25 13:02:05	43.3
43	2018/11/25 13:02:08	44.0
44	2018/11/25 13:02:11	55.0
45	2018/11/25 13:02:14	51.1
46	2018/11/25 13:02:17	61.8
47	2018/11/25 13:02:20	44.1
48	2018/11/25 13:02:23	43.2
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51	2018/11/25 13:02:32	50.3
52	2018/11/25 13:02:35	45.9
53	2018/11/25 13:02:38	44.7
54	2018/11/25 13:02:41	51.8
55	2018/11/25 13:02:44	48.1
56	2018/11/25 13:02:47	47.0
57	2018/11/25 13:02:50	45.1
58	2018/11/25 13:02:53	46.3
59	2018/11/25 13:02:56	47.4
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61	2018/11/25 13:03:02	49.1
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68	2018/11/25 13:03:23	47.4
69	2018/11/25 13:03:26	47.8
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72	2018/11/25 13:03:35	52.6
73	2018/11/25 13:03:38	51.6
74	2018/11/25 13:03:41	47.5
75	2018/11/25 13:03:44	47.6
76	2018/11/25 13:03:47	48.2
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995	2018/11/25 13:49:44	57.7
996	2018/11/25 13:49:47	49.6
997	2018/11/25 13:49:50	51.7
998	2018/11/25 13:49:53	49.2
999	2018/11/25 13:49:56	53.7
1000	2018/11/25 13:49:59	53.3
1001	2018/11/25 13:50:02	54.5
1002	2018/11/25 13:50:05	56.7
1003	2018/11/25 13:50:08	56.5
1004	2018/11/25 13:50:11	53.2
1005	2018/11/25 13:50:14	49.6
1006	2018/11/25 13:50:17	44.9
1007	2018/11/25 13:50:20	44.1
1008	2018/11/25 13:50:23	49.4
1009	2018/11/25 13:50:26	39.2
1010	2018/11/25 13:50:29	40.7
1011	2018/11/25 13:50:32	40.1
1012	2018/11/25 13:50:35	41.0
1013	2018/11/25 13:50:38	36.3
1014	2018/11/25 13:50:41	38.0
1015	2018/11/25 13:50:44	46.1
1016	2018/11/25 13:50:47	39.8
1017	2018/11/25 13:50:50	45.8
1018	2018/11/25 13:50:53	40.4
1019	2018/11/25 13:50:56	44.3
1020	2018/11/25 13:50:59	44.8
1021	2018/11/25 13:51:02	50.4
1022	2018/11/25 13:51:05	50.4
1023	2018/11/25 13:51:08	50.8
1024	2018/11/25 13:51:11	53.5
1025	2018/11/25 13:51:14	54.9
1026	2018/11/25 13:51:17	54.1
1027	2018/11/25 13:51:20	52.3
1028	2018/11/25 13:51:23	46.5
1029	2018/11/25 13:51:26	47.9
1030	2018/11/25 13:51:29	50.3
1031	2018/11/25 13:51:32	45.2
1032	2018/11/25 13:51:35	45.4
1033	2018/11/25 13:51:38	44.3
1034	2018/11/25 13:51:41	50.3
1035	2018/11/25 13:51:44	59.9
1036	2018/11/25 13:51:47	49.0
1037	2018/11/25 13:51:50	51.2
1038	2018/11/25 13:51:53	51.1
1039	2018/11/25 13:51:56	62.4
1040	2018/11/25 13:51:59	57.5
1041	2018/11/25 13:52:02	55.7
1042	2018/11/25 13:52:05	55.8
1043	2018/11/25 13:52:08	50.4
1044	2018/11/25 13:52:11	58.3
1045	2018/11/25 13:52:14	53.4
1046	2018/11/25 13:52:17	54.8
1047	2018/11/25 13:52:20	44.9
1048	2018/11/25 13:52:23	48.2
1049	2018/11/25 13:52:26	44.3
1050	2018/11/25 13:52:29	46.4
1051	2018/11/25 13:52:32	47.4
1052	2018/11/25 13:52:35	43.2
1053	2018/11/25 13:52:38	40.1
1054	2018/11/25 13:52:41	49.6
1055	2018/11/25 13:52:44	43.5
1056	2018/11/25 13:52:47	47.3
1057	2018/11/25 13:52:50	43.9
1058	2018/11/25 13:52:53	45.8
1059	2018/11/25 13:52:56	49.7
1060	2018/11/25 13:52:59	48.2
1061	2018/11/25 13:53:02	57.4
1062	2018/11/25 13:53:05	48.2
1063	2018/11/25 13:53:08	52.4
1064	2018/11/25 13:53:11	47.8
1065	2018/11/25 13:53:14	47.4
1066	2018/11/25 13:53:17	50.2
1067	2018/11/25 13:53:20	52.1
1068	2018/11/25 13:53:23	48.6
1069	2018/11/25 13:53:26	49.6
1070	2018/11/25 13:53:29	46.5
1071	2018/11/25 13:53:32	54.3
1072	2018/11/25 13:53:35	51.8
1073	2018/11/25 13:53:38	46.6
1074	2018/11/25 13:53:41	47.7
1075	2018/11/25 13:53:44	49.6

1076	2018/11/25	13:53:47	50.8
1077	2018/11/25	13:53:50	53.8
1078	2018/11/25	13:53:53	59.5
1079	2018/11/25	13:53:56	61.2
1080	2018/11/25	13:53:59	56.7
1081	2018/11/25	13:54:02	58.5
1082	2018/11/25	13:54:05	54.0
1083	2018/11/25	13:54:08	50.1
1084	2018/11/25	13:54:11	51.0
1085	2018/11/25	13:54:14	45.2
1086	2018/11/25	13:54:17	44.4
1087	2018/11/25	13:54:20	43.4
1088	2018/11/25	13:54:23	41.1
1089	2018/11/25	13:54:26	45.2
1090	2018/11/25	13:54:29	42.5
1091	2018/11/25	13:54:32	42.3
1092	2018/11/25	13:54:35	44.5
1093	2018/11/25	13:54:38	46.4
1094	2018/11/25	13:54:41	43.9
1095	2018/11/25	13:54:44	43.8
1096	2018/11/25	13:54:47	46.4
1097	2018/11/25	13:54:50	48.6
1098	2018/11/25	13:54:53	56.4
1099	2018/11/25	13:54:56	57.2
1100	2018/11/25	13:54:59	56.1
1101	2018/11/25	13:55:02	48.9
1102	2018/11/25	13:55:05	48.8
1103	2018/11/25	13:55:08	44.9
1104	2018/11/25	13:55:11	42.7
1105	2018/11/25	13:55:14	46.4
1106	2018/11/25	13:55:17	41.0
1107	2018/11/25	13:55:20	54.3
1108	2018/11/25	13:55:23	44.6
1109	2018/11/25	13:55:26	49.2
1110	2018/11/25	13:55:29	40.9
1111	2018/11/25	13:55:32	40.0
1112	2018/11/25	13:55:35	38.5
1113	2018/11/25	13:55:38	40.2
1114	2018/11/25	13:55:41	45.1
1115	2018/11/25	13:55:44	52.1
1116	2018/11/25	13:55:47	50.2
1117	2018/11/25	13:55:50	44.8
1118	2018/11/25	13:55:53	42.5
1119	2018/11/25	13:55:56	42.6
1120	2018/11/25	13:55:59	46.3
1121	2018/11/25	13:56:02	48.8
1122	2018/11/25	13:56:05	50.8
1123	2018/11/25	13:56:08	45.5
1124	2018/11/25	13:56:11	44.6
1125	2018/11/25	13:56:14	46.0
1126	2018/11/25	13:56:17	46.3
1127	2018/11/25	13:56:20	42.7
1128	2018/11/25	13:56:23	50.5
1129	2018/11/25	13:56:26	45.1
1130	2018/11/25	13:56:29	48.6
1131	2018/11/25	13:56:32	45.0
1132	2018/11/25	13:56:35	46.0
1133	2018/11/25	13:56:38	48.9
1134	2018/11/25	13:56:41	41.1
1135	2018/11/25	13:56:44	47.1
1136	2018/11/25	13:56:47	42.5
1137	2018/11/25	13:56:50	45.2
1138	2018/11/25	13:56:53	42.4
1139	2018/11/25	13:56:56	40.7
1140	2018/11/25	13:56:59	43.8
1141	2018/11/25	13:57:02	49.3
1142	2018/11/25	13:57:05	45.4
1143	2018/11/25	13:57:08	42.1
1144	2018/11/25	13:57:11	51.1
1145	2018/11/25	13:57:14	48.8
1146	2018/11/25	13:57:17	57.3
1147	2018/11/25	13:57:20	47.0
1148	2018/11/25	13:57:23	50.0
1149	2018/11/25	13:57:26	47.1
1150	2018/11/25	13:57:29	50.5
1151	2018/11/25	13:57:32	48.5
1152	2018/11/25	13:57:35	47.2
1153	2018/11/25	13:57:38	51.0
1154	2018/11/25	13:57:41	51.3
1155	2018/11/25	13:57:44	58.5
1156	2018/11/25	13:57:47	52.6
1157	2018/11/25	13:57:50	56.2
1158	2018/11/25	13:57:53	55.6
1159	2018/11/25	13:57:56	57.6
1160	2018/11/25	13:57:59	55.8
1161	2018/11/25	13:58:02	53.9
1162	2018/11/25	13:58:05	52.1
1163	2018/11/25	13:58:08	43.5
1164	2018/11/25	13:58:11	51.7
1165	2018/11/25	13:58:14	45.6
1166	2018/11/25	13:58:17	43.7
1167	2018/11/25	13:58:20	43.4
1168	2018/11/25	13:58:23	41.9
1169	2018/11/25	13:58:26	44.1
1170	2018/11/25	13:58:29	39.7
1171	2018/11/25	13:58:32	40.6
1172	2018/11/25	13:58:35	40.1
1173	2018/11/25	13:58:38	40.3
1174	2018/11/25	13:58:41	41.2

1175	2018/11/25	13:58:44	40.5
1176	2018/11/25	13:58:47	51.7
1177	2018/11/25	13:58:50	53.6
1178	2018/11/25	13:58:53	42.7
1179	2018/11/25	13:58:56	42.3
1180	2018/11/25	13:58:59	44.8
1181	2018/11/25	13:59:02	52.7
1182	2018/11/25	13:59:05	49.6
1183	2018/11/25	13:59:08	44.2
1184	2018/11/25	13:59:11	46.0
1185	2018/11/25	13:59:14	44.4
1186	2018/11/25	13:59:17	42.0
1187	2018/11/25	13:59:20	42.0
1188	2018/11/25	13:59:23	47.9
1189	2018/11/25	13:59:26	48.0
1190	2018/11/25	13:59:29	47.6
1191	2018/11/25	13:59:32	50.0
1192	2018/11/25	13:59:35	58.0
1193	2018/11/25	13:59:38	53.8
1194	2018/11/25	13:59:41	53.0
1195	2018/11/25	13:59:44	48.2
1196	2018/11/25	13:59:47	45.9
1197	2018/11/25	13:59:50	52.5
1198	2018/11/25	13:59:53	54.7
1199	2018/11/25	13:59:56	47.3
1200	2018/11/25	13:59:59	43.5

Appendix B

Roadway Construction Noise Model (RCNM) Results and Modeled Equipment

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 1/22/2019
Case Description:

		---- Receptor #1 ----		
		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Hsi Monestary	Residential	55	50	40

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	50	0
Front End Loader	No	40		79.1	50	0
Excavator	No	40		80.7	50	0
Generator	No	50		80.6	50	0

Results
Calculated (dBA)

Equipment		*Lmax	Leq
Dozer		81.7	77.7
Front End Loader		79.1	75.1
Excavator		80.7	76.7
Generator		80.6	77.6
	Total	81.7	82.9

*Calculated Lmax is the Loudest value.

Appendix C

TNM Traffic Model Results

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Hsi Monastery - Existing

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	2186.0
Average automobile speed (mph):	40.0
Medium truck volume (v/h):	16.0
Average medium truck speed (mph):	40.0
Heavy truck volume (v/h):	29.0
Average heavy truck speed (mph):	40.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

Distance from center of 12-ft wide, single lane roadway (ft):	50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA):	70.0

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	2256.0
Average automobile speed (mph):	40.0
Medium truck volume (v/h):	17.0
Average medium truck speed (mph):	30.0
Heavy truck volume (v/h):	40.0
Average heavy truck speed (mph):	0.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

Distance from center of 12-ft wide, single lane roadway (ft):	50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA):	71.4

Appendix D

Sample HVAC Specifications

50VG−A

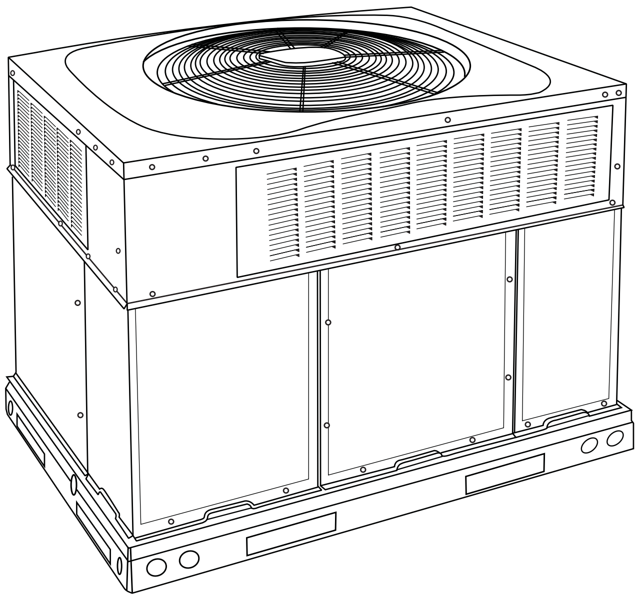
Performance™ 16 SEER 2−Stage Packaged Air Conditioner System with Puron® (R−410A) Refrigerant

Single and Three Phase

2 to 5 Nominal Tons (Sizes 24−60)

turn to the experts™

Product Data



A09033

Fig. 1 - Unit 50VG-A

Single-Packaged Products with Energy-Saving Features and Puron® refrigerant.

- 15.0-16.0 SEER / 12.0-12.5 EER
- Factory-Installed TXV
- Multi-speed ECM Blower Motor - Standard
- Sound levels as low as 72dBA
- Two Stages of Cooling
- Dehumidification Feature

FEATURES/BENEFITS

One-piece cooling unit with optional electric heater, low sound levels, easy installation, low maintenance, and dependable performance.

Puron Environmentally Sound Refrigerant is Carrier's unique refrigerant designed to help protect the environment. Puron is an HFC refrigerant which does not contain chlorine that can harm the ozone layer. Puron refrigerant is in service in millions of systems proving highly reliable, environmentally sound performance.

Easy Installation

Factory-assembled package is a compact, fully self-contained, electric cooling unit that is prewired, pre-piped, and pre-charged for minimum installation expense. These units are available in a variety of standard cooling sizes with voltage options to meet residential and light commercial requirements. Units are lightweight and install easily on a rooftop or at ground level. The high tech composite base eliminates rust problems associated with ground level applications.

Innovative Unit Base Design

On the inside a high-tech composite material will not rust and incorporates a sloped drain pan which improves drainage and helps inhibit mold, algae and bacterial growth. On the outside metal base rails provide added stability as well as easier handling and rigging.

Convertible duct configuration

Unit is designed for use in either downflow or horizontal applications. Each unit is converted from horizontal to downflow and includes horizontal duct covers. Downflow operation is provided in the field to allow vertical ductwork connections. The basepan seals on the bottom openings to ensure a positive seal in the vertical airflow mode.

Efficient operation High-efficiency design offers SEER (Seasonal Energy Efficiency Ratios) of up to 16.0. (See page 4.)

Durable, dependable components

Scroll Compressors have 2 stages of cooling and are designed for high efficiency. Each compressor is hermetically sealed against contamination to help promote longer life and dependable operation. Each compressor also has vibration isolation to provide quieter operation. All compressors have internal high pressure and overcurrent protection.

Multi-speed ECM Blower Motor is standard on all 50VG-A.

Direct-drive PSC (Permanent Split Capacitor) condenser-fan motors are designed to help reduce energy consumption and provide for cooing operation down to 40°F (4.4°C) outdoor temperature. Motormaster® II low ambient kit is available as a field-installed accessory.

Thermostatic Expansion Valve - A hard shutoff, balance port TXV maintains a constant superheat at the evaporator exit (cooling cycle) resulting in higher overall system efficiency.

Refrigerant system is designed to provide dependability. Liquid filter driers are used to promote clean, unrestricted operation. Each unit leaves the factory with a full refrigerant charge. Refrigerant service connections make checking operating pressures easier.

High and Low Pressure Switches provide added reliability for the compressor.

Indoor and Outdoor coils are computer-designed for optimum heat transfer and efficiency. The indoor coil is fabricated from copper tube and aluminum fins and is located inside the unit for protection against damage. The outdoor coil is internally mounted on the top tier of the unit.

Low sound ratings ensure a quiet indoor and outdoor environment with sound ratings as low as 72dBA. (See Page 4.)

Easy to service cabinets provide easy 3 panel accessibility to serviceable components during maintenance and installation. The basepan with integrated drain pan provides easy ground level installation with a mounting pad. A nesting feature ensures a positive basepan to roof curb seal when the unit is roof mounted. A convenient 3/4-in. (19.05 mm) wide perimeter flange makes frame mounting on a rooftop easy.

50VG−A

Dehumidification Feature

This unit has independent fan speeds for low stage cooling and high stage cooling. In addition, 208/230 VAC models have the field-selectable capability to run an enhanced dehumidification ('DHUM') speed on high stage cooling (as low as 320CFM per ton). Coupled with the improved dehumidification associated with low stage cooling, the DHUM speed allows for a complete dehumidification solution independent of cooling stage. The dehumidification control must open the control circuit on humidity rise above the dehumidification set point.

NOTE: The enhanced dehumidification feature on high stage cooling does not support use of an economizer.

Standard horizontal metal duct covers with insulation come with the unit and cover the horizontal duct openings. These can be left in place if the units are converted to downflow.

Cabinets are constructed of heavyduty, phosphated, zinc-coated prepainted steel capable of withstanding 500 hours in salt spray. Interior surfaces of the evaporator/electric heater compartment are insulated with foil-faced insulation, which keeps the conditioned air from being affected by the outdoor ambient temperature and provides improved indoor air quality. (Conforms to American Society of Heating, Refrigeration and Air Conditioning Engineers No. 62P.) The sloped drain pan minimizes standing water in the drain. An external drain is provided.

TABLE OF CONTENTS

MODEL NUMBER NOMENCLATURE

50VG – A 24 – – – 3 0 – –

Type of Unit
50VG – Single Packaged Air Conditioner System

N/A

Major Series

Nominal Cooling Capacity
24 – 2.0 Tons
30 – 2.5 Tons
36 – 3.0 Tons
42 – 3.5 Tons
48 – 4.0 Tons
60 – 5.0 Tons

N/A

Electrical Supply
3 – 208/230–1–60
5 – 208/230–3–60
6 – 460–3–60

Minor Series

Options

TF – Filter Rack
TP – Base unit with tin plated indoor coil hairpins (Single Phase Only)

See Price Page for full list of factory options.
Only used if ordering an option

Use of the AHRI Certified TM Mark indicates a manufacturer's participation in the program For verification of certification for individual products, go to www.ahridirectory.org.

AHRI* CAPACITIES

Cooling Capacities and Efficiencies

Unit Model 50VG-A	Nominal Tons	Standard CFM (High / Low Stage)	Net Cooling Capacities - Btuh (High Stage)	EER @A**	SEER†
24	2	800 / 600	23000	12.0	15.0
30	2-1/2	1000 / 750	29000	12.0	15.0
36	3	1200 / 900	35400	12.5	16.0
42	3-1/2	1400 / 1050	42000	12.5	16.0
48	4	1600 / 1200	47500	12.3	16.0
60	5	1750 / 1200	57000	12.3	16.0

LEGEND
dB– Sound Levels (decibels)
db—Dry Bulb
SEER—Seasonal Energy Efficiency Ratio
wb—Wet Bulb
COP–Coefficient of Performance
* Air Conditioning, Heating & Refrigeration Institute.
**At "A" conditions–80°F (26.7°C) indoor db/67°F (19.4°C) indoor wb & 95°F (35°C) outdoor db.
† Rated in accordance with U.S. Government DOE Department of Energy) test procedures and/or AHRI Standards 210/240.

Notes:
1. Ratings are net values, reflecting the effects of circulating fan heat. Ratings are based on:
Cooling Standard: 80°F (26.7°C) db, 67°F wb (19.4°C) indoor entering–air temperature and 95°F db (35°C) outdoor entering–air temperature.
2. Before purchasing this appliance, read important energy cost and efficiency information available from AHRIdirectory.org.

A-WEIGHTED SOUND POWER LEVEL (dBA)

Model 50VG-A	Sound Ratings (dBA)	TYPICAL OCTAVE BAND SPECTRUM (dBA without tone adjustment)						
		125	250	500	1000	2000	4000	8000
24	73	60.0	62.5	68.5	68.5	64.0	60.0	53.0
30	77	57.5	67.0	73.5	72.0	67.0	61.0	52.5
36	73	62.5	65.5	67.5	68.0	65.5	60.0	52.5
42	73	60.5	63.5	68.0	68.0	66.0	60.5	53.0
48	72	60.0	63.5	66.0	67.0	63.5	58.5	49.5
60	75	69.0	67.0	69.0	68.0	65.0	61.5	54.0

NOTE: Tested in accordance with AHRI Standard 270 (not listed in AHRI).

PHYSICAL DATA1.

Physical Data-Unit 50VG-A

UNIT SIZE	24	30	36	42	48	60
NOMINAL CAPACITY (ton)	2	2–1/2	3	3–1/2	4	5
SHIPPING WEIGHT lb. SHIPPING WEIGHT (kg)	335 152.0	342 155.1	397 180.1	400 181.4	452 205.0	472 214.1
COMPRESSORS	2–Stage Scroll					
Quantity	1					
REFRIGERANT (R–410A) Quantity lb Quantity (kg)	 6.4 2.9	 8.3 3.8	 8.1 3.7	 8.7 3.9	 10.8 4.9	 12.1 5.5
REFRIGERANT METERING DEVICE	TXV					
OUTDOOR COIL Rows...Fins/in. Face Area (sq ft)	 1...21 13.6	 2...21 13.6	 2...21 13.6	 2...21 13.6	 2...21 19.4	 2...21 21.4
OUTDOOR FAN Nominal Cfm Diameter in. Diameter (mm) Motor Hp (Rpm)	 2500 24 609.6 1/10 (810)	 2700 24 609.6 1/5 (810)	 3000 26 660.4 1/5 (810)	 3000 26 660.4 1/5 (810)	 3300 26 660.4 1/5 (810)	 3600 26 660.4 1/5 (810)
INDOOR COIL Rows...Fins/in. Face Area (sq ft)	 3...17 3.7	 3...17 3.7	 3...17 4.7	 3...17 4.7	 3...17 5.7	 3...17 5.7
INDOOR BLOWER Nominal Low Stage Cooling Airflow (Cfm) Nominal High Stage Cooling Airflow (Cfm) Size in. Size (mm.) Motor HP (RPM)	 600 800 10x10 254x254 1/2 (1050)	 750 1000 10x10 254x254 1/2 (1050)	 900 1200 11x10 279.4x254 3/4 (1000)	 1050 1400 11x10 279.4x254 3/4 (1075)	 1200 1600 11x10 279.4x254 1.0 (1075)	 1200 1750 11x10 279.4x254 1.0 (1075)
HIGH–PRESSURE SWITCH (psig) Cut–out Reset (Auto)	650 +/– 15 420 +/– 25					
LOW–PRESSURE SWITCH (psig) cut–out Reset (auto)	50 +/– 7 95 +/– 7					
DUCT RETURN–AIR FILTERS†‡ Throwaway Size in. Throwaway Size (mm)	 20x20x1 508x508x25	 20x24x1 508x610x25	 24x30x1 610x762x25		 24x36x1 610x914x25	

† Required filter sizes shown are based on the larger of the AHRI (Air Conditioning Heating and Refrigeration Institute) rated cooling airflow or the heating airflow velocity of 300 ft/minute for throwaway type or 450 ft/minute for high–capacity type. Air filter pressure drop for non–standard filters must not exceed 0.08 in. W.C.

‡ If using accessory filter rack refer to the filter rack installation instructions for correct filter sizes and quantity.

Electric Heat Pressure Drop Tables (IN. W.C.)

Small Cabinet: 24-30

STATIC	CFM											
	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600
5 kW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.06	0.07
10 kW	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.06	0.07	0.09	0.10	0.11
15 kW	0.00	0.00	0.00	0.02	0.04	0.06	0.08	0.10	0.12	0.14	0.16	0.18
20 kW	0.00	0.00	0.02	0.04	0.06	0.08	0.09	0.11	0.13	0.15	0.17	0.19

Large Cabinet: 36-60

STATIC	CFM														
	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
5 kW	0.00	0.00	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12
10 kW	0.00	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13
15 kW	0.00	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15
20 kW	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.16

OPTIONS AND ACCESSORIES

ITEM	DESCRIPTION	FACTORY INSTALLED OPTION	FIELD INSTALLED ACCESSORY
Coil Options	Base unit with tin plated indoor coil hairpins	X	
Compressor Start Kit	Compressor Start Kit assists compressor start–up by providing additional starting torque on sing phase units only.		X
Corporate Thermostats	Thermostats provide control for the system heating and cooling functions.		X
Crankcase Heater	Crankcase Heater provides anti–floodback protection for low–load cooling applications.		X*
Economizer	Vertical Economizer with Jade Honeywell W7220 Controller, Honeywell communicating actuator, and dry bulb sensor. (Contact MicroMetl Customer Service at 1–800–662–4822 to order.)		X
	Horizontal Economizer with Jade Honeywell W7220 Controller, Honeywell communicating actuator, and dry bulb sensor. (Contact MicroMetl Customer Service at 1–800–662–4822 to order.)		X
Electric Heaters	Electric Heat Supplement		X
Filter Rack	Filter Rack features easy installation, serviceability, and high–filtering performance for vertical applications. Includes 1–in. filter.	X	X
Flat Roof Curbs	Flat Roof Curbs in both 11–in (279 mm) and 14–in. (356 mm) sizes are available for roof mounted applications.		X
Low Ambient Kit	Low Ambient Kit (Motormaster II Control) allows the use of mechanical cooling down to outdoor temperatures as low as 0°F (–18° C) when properly installed.		X
Manual Outside Air Damper	Manual Outside Air Damper includes hood and filter rack with adjustable damper blade for up to 25% outdoor air.		X
Square–to–Round Duct Transition Kit	Square–to–Round Duct Transition Kit enable 24–48 size units to be fitted to 14 in (356 mm). round ductwork.		X
Time Guard II	Automatically prevents the compressor from restarting for at least 4 minutes and 45 seconds after shutdown of the compressor. Not required when a corporate programmable thermostat is applied or with a RTU–MP control.		X
Dual Point Electric Heaters	Allows you to power the electric heater and unit contactor separately by having two individual field power supply circuits connected respectively.		X

*Refer to Price Page for application detail.

Electric Heaters

CATALOG ORDERING NO.	NOMINAL CAPACITY (kW)	FUSE QTY	USED WITH SIZES					
			24	30	36	42	48	60
ELECTRIC HEATERS (208/230 — SINGLE PHASE — 60 Hz)								
CPHEATER052A00	5.0	–	X	X	X	X	X	X
CPHEATER064A00	5.0	4	X	X	X	X	X	X
CPHEATER069A00	7.2	–	X	X	X	X	X	X
CPHEATER070A00	7.2	4	X	X	X	X	X	X
CPHEATER065A00	10.0	–	X	X	X	X		
CPHEATER050A00	10.0	4	X	X	X	X	X	X
CPHEATER051A00	15.0	4		X	X	X		
CPHEATER066A00	15.0	6		X	X	X	X	X
CPHEATER053A00	20.0	6				X	X	X
CPHEATER054A00	20.0	6				X	X	X
ELECTRIC HEATERS (208/230 — THREE PHASE — 60 Hz)								
CPHEATER055A00	5.0	–		X	X	X	X	X
CPHEATER056A00	10.0	–		X	X	X	X	X
CPHEATER068A00	10.0	6		X	X	X	X	X
CPHEATER057A01	15.0	–		X	X	X	X	X
CPHEATER058A00	20.0	6		X	X	X	X	X
CPHEATER059A01	20.0	6				X	X	X
ELECTRIC HEATERS (460 — THREE PHASE — 60 Hz)								
CPHEATER061A00	10.0	–			X	X	X	X
CPHEATER062A00	15.0	–			X	X	X	X
CPHEATER063A00	20.0	–				X	X	X

NOTE: Electric heaters are rated at 240v. Refer to Multiplication Factors table for other voltages.
X = Approved combinations.

Minimum Airflow for Safe Electric Heater Operation (CFM)

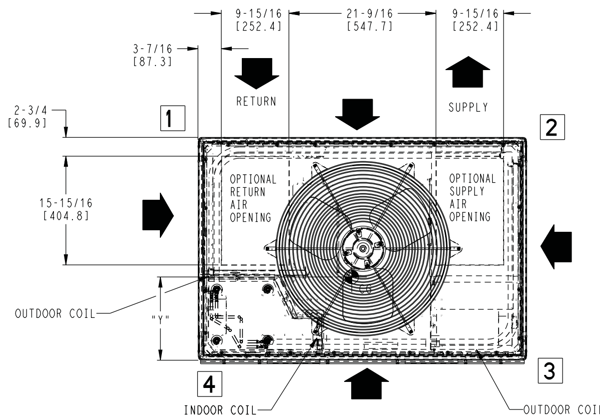
SIZE	24	30	36	42	48	60
Cfm	800	1000	1200	1400	1600	1750

UNIT DIMENSIONS - 50VG-A24-30

UNIT	ELECTRICAL CHARACTERISTICS	UNIT WT.		UNIT HEIGHT IN/MM		CENTER OF GRAVITY IN/MM					
		LB	KG	"A"		X		Y		Z	
50VG-A24---(3)0	208/230-1	327	148.3	44-1/8	1121	20-1/2	520.7	15-3/4	400.1	16-5/8	422.3
50VG-A30---(3/5)0	208/230-1, 208/230-3-60	334	151.5	44-1/8	1121	20-1/2	520.7	15-3/4	400.1	17-3/8	441.3

UNIT	VOLTAGE	CORNER WEIGHT LB/KG							
		"1"		"2"		"3"		"4"	
50VG-A24---(3)0	208/230	39.2	22.2	52.3	29.7	78.5	44.5	130.8	51.9
50VG-A30---(3/5)0	208/230	40.1	22.7	53.4	30.3	80.2	45.5	133.6	53.0

NOTE: ALL TABLE DATA RELEVANT FOR ALL FACTORY INSTALLED OPTIONS EXCEPT ECONOMIZER



TOP VIEW

REQUIRED CLEARANCES TO COMBUSTIBLE MATL.

	INCHES [MM]
TOP OF UNIT	14 [355.6]
DUCT SIDE OF UNIT	2 [50.8]
SIDE OPPOSITE DUCTS	14 [355.6]
BOTTOM OF UNIT	0 [0.0]
ELECTRICAL PANEL	36 [914.4]

NEC. REQUIRED CLEARANCES.

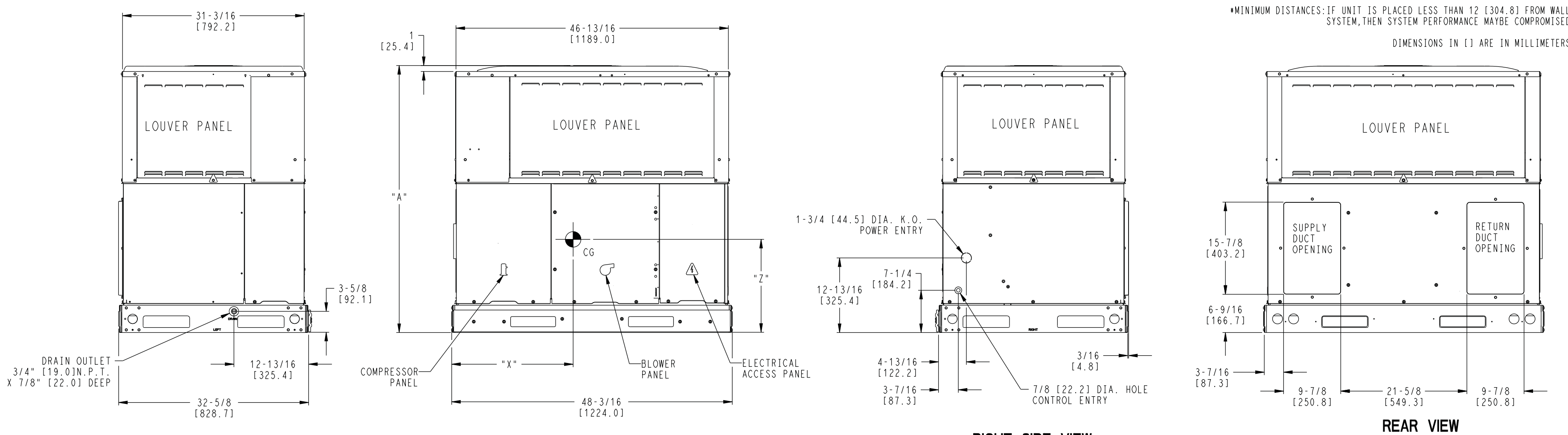
	INCHES [MM]
BETWEEN UNITS, POWER ENTRY SIDE	42 [1066.8]
UNIT AND UNGROUNDED SURFACES, POWER ENTRY SIDE	36 [914.0]
UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES, POWER ENTRY SIDE	42 [1066.8]

REQUIRED CLEARANCE FOR OPERATION AND SERVICING

	INCHES [MM]
EVAP. COIL ACCESS SIDE	36 [914.0]
POWER ENTRY SIDE (EXCEPT FOR NEC REQUIREMENTS)	42 [1066.8]
UNIT TOP	48 [1219.2]
SIDE OPPOSITE DUCTS	36 [914.0]
DUCT PANEL	12 [304.8]*

*MINIMUM DISTANCES:IF UNIT IS PLACED LESS THAN 12 [304.8] FROM WALL SYSTEM,THEN SYSTEM PERFORMANCE MAYBE COMPROMISED.

DIMENSIONS IN [ ] ARE IN MILLIMETERS



LEFT SIDE VIEW FRONT VIEW RIGHT SIDE VIEW REAR VIEW

50VG500074	REV A

A12586

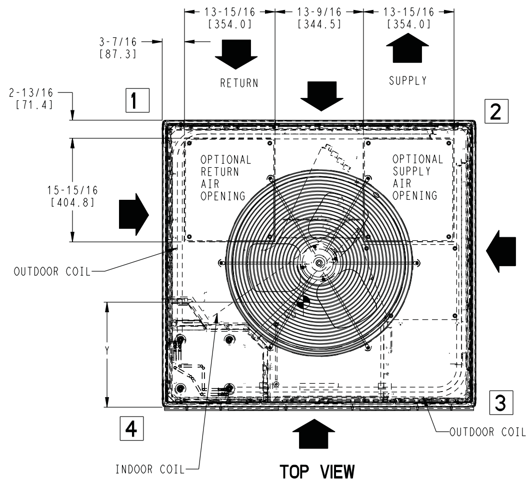
50VG-A

UNIT DIMENSIONS - 50VG-A36-60

UNIT	ELECTRICAL CHARACTERISTICS	UNIT WT.		UNIT HEIGHT IN/MM		CENTER OF GRAVITY IN/MM					
		LB	KG	"A"		X		Y		Z	
50VG-A36---(3/5/6)0	208/230-1, 208/230-3-60, 460-3	389	176.4	44-3/4	1137	20-1/4	514.4	17-1/2	444.5	17-5/8	447.7
50VG-A42---(3/5/6)0	208/230-1, 208/230-3-60, 460-3	392	177.8	44-3/4	1137	20-1/4	514.4	17-1/2	444.5	17-5/8	447.7
50VG-A48---(3/5/6)0	208/230-1, 208/230-3-60, 460-3	444	201.4	50-3/4	1289	20-1/4	514.4	17-1/2	444.5	17-5/8	447.7
50VG-A60---(3/5/6)0	208/230-1, 208/230-3-60, 460-3	464	210.5	52-3/4	1340	20-1/4	514.4	17-1/2	444.5	18	457.2

UNIT	VOLTAGE	CORNER WEIGHTS LB/KG							
		"1"		"2"		"3"		"4"	
50VG-A36---(3/5/6)0	208/230/460	46.7	26.5	62.2	35.3	93.4	52.9	155.6	61.8
50VG-A42---(3/5/6)0	208/230/460	47.0	26.7	62.7	35.6	94.1	53.3	156.8	62.2
50VG-A48---(3/5/6)0	208/230/460	53.3	30.2	71.0	40.3	106.6	60.4	177.6	70.5
50VG-A60---(3/5/6)0	208/230/460	55.7	31.6	74.2	42.1	111.4	63.1	185.6	73.7

NOTE: ALL TABLE DATA RELEVANT FOR ALL FACTORY INSTALLED OPTIONS EXCEPT ECONOMIZER



TOP VIEW

REQUIRED CLEARANCES TO COMBUSTIBLE MATL.

INCHES [MM]
TOP OF UNIT..............14 [355.6]
DUCT SIDE OF UNIT..............2 [50.8]
SIDE OPPOSITE DUCTS..............14 [355.6]
BOTTOM OF UNIT..............0 [0.0]
ELECTRICAL PANEL..............36 [914.4]

NEC. REQUIRED CLEARANCES.

INCHES [MM]
BETWEEN UNITS, POWER ENTRY SIDE..............42 [1066.8]
UNIT AND UNGROUNDED SURFACES, POWER ENTRY SIDE..............36 [914.0]
UNIT AND BLOCK OR CONCRETE WALLS AND OTHER
GROUNDED SURFACES, POWER ENTRY SIDE..............42 [1066.8]

REQUIRED CLEARANCE FOR OPERATION AND SERVICING

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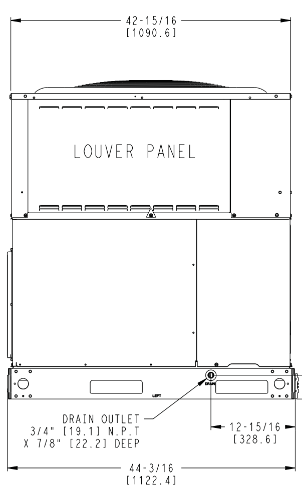
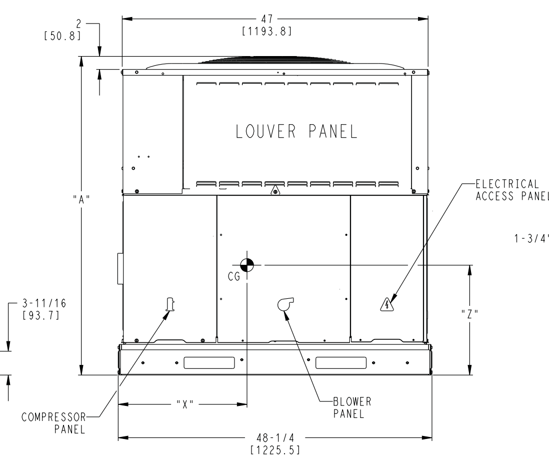
EVAP. COIL ACCESS SIDE..............36 [914.0]
POWER ENTRY SIDE..............42 [1066.8]
(EXCEPT FOR NEC REQUIREMENTS)
UNIT TOP..............48 [1219.2]
SIDE OPPOSITE DUCTS..............36 [914.0]
DUCT PANEL..............12 [304.8]*

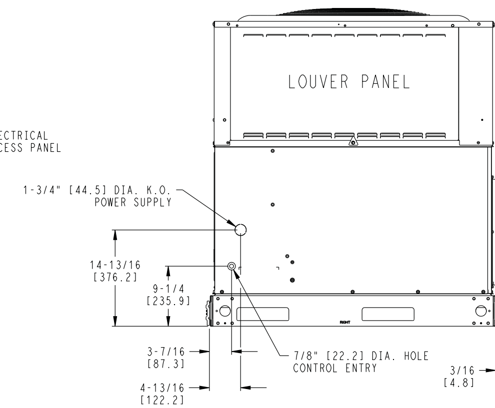
*MINIMUM DISTANCES: IF UNIT IS PLACED LESS THAN 12 [304.8] FROM WALL SYSTEM, THEN SYSTEM PERFORMANCE MAYBE COMPROMISED.
DIMENSIONS IN [] ARE IN MM



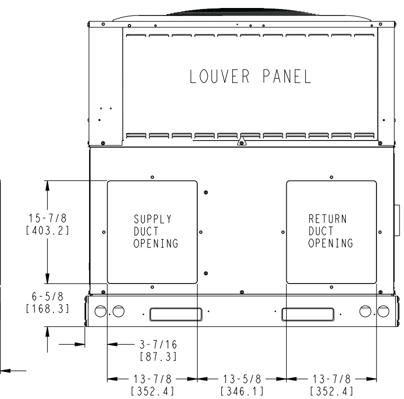
LEFT SIDE VIEW



FRONT VIEW



RIGHT SIDE VIEW

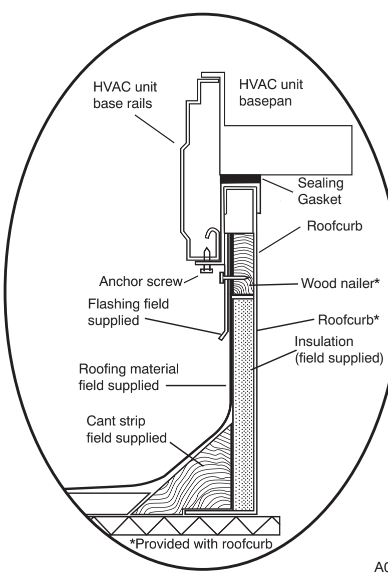


REAR VIEW

50VG500075	REV A

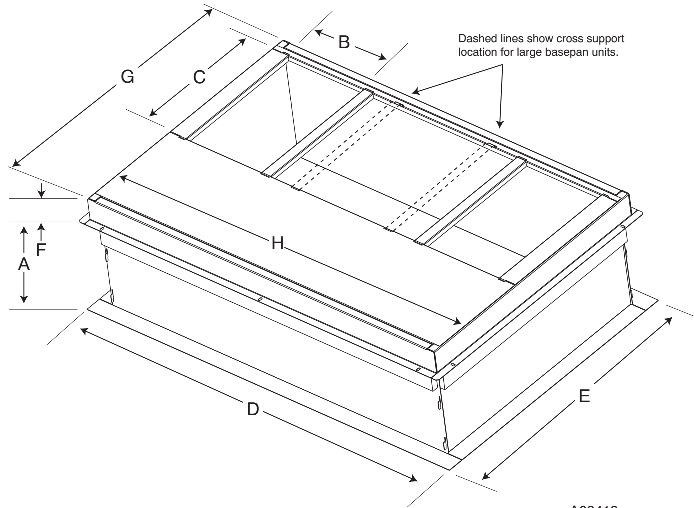
A12587

ROOF CURB ACCESSORY - 50VG-A24-60



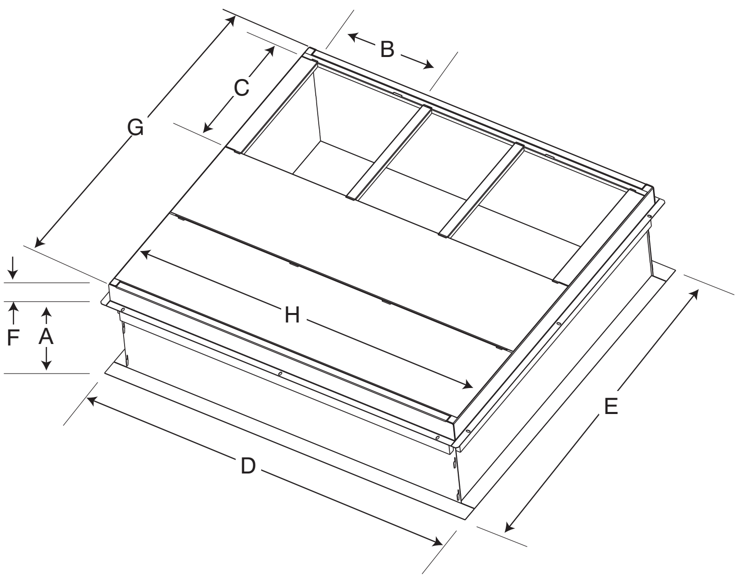
A09090

ROOF CURB DETAIL



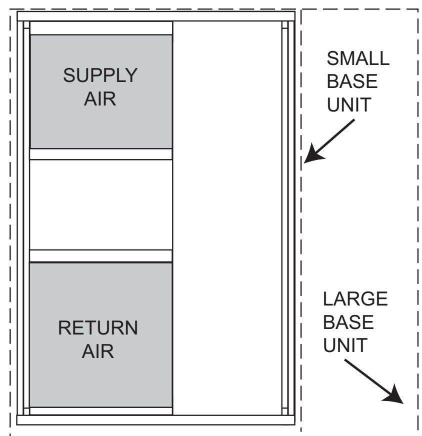
A09413

SMALL/COMMON CURB



A09415

LARGE CURB



UNIT PLACEMENT ON COMMON CURB

A09094

SMALL OR LARGE BASE UNIT

A09414

UNIT SIZE	CATALOG NUMBER	A IN. (mm)	B (small/common base) IN. (mm)*	B (large base) IN. (mm)*	C IN. (mm)	D IN. (mm)	E IN. (mm)	F IN. (mm)	G IN. (mm)	H IN. (mm)
Small or Large	CPRFCURB010A00	11 (279)	10 (254)	14 (356)	16 (406)	47.8 (1214)	32.4 (822)	2.7 (69)	30.6 (778)	46.1 (1170)
	CPRFCURB011A00	14 (356)								
Large	CPRFCURB012A00	11 (279)	14 (356)				43.9 (1116)		42.2 (1072)	
	CPRFCURB013A00	14 (356)								

* Part Numbers CPRCURB010A00 and CPRCURB011A00 can be used on both small and large basepan units. The cross supports must be located based on whether the unit is a small basepan or a large basepan.

NOTES:

1. Roof curb must be set up for unit being installed.
2. Seal strip must be applied, as required, to unit being installed.
3. Roof curb is made of 16-gauge steel.
4. Attach ductwork to curb (flanges of duct rest on curb).
5. Insulated panels: 1-in. (25.4 mm) thick fiberglass 1 lb. density.

SELECTION PROCEDURE (WITH EXAMPLE)

1. Determine cooling and heating requirements at design conditions:

Given:

Required Cooling Capacity (TC)	34,000 Btuh
Sensible Heat Capacity (SHC)	24,000 Btuh
Required Heating Capacity	12,500 Btuh
Condenser Entering Air Temperature	95°F(35°C)
Indoor-Air Temperature	80°F (26°C) edb 67°F (19°C) ewb
Evaporator Air Quantity	1200 CFM
External Static Pressure	0.20 IN. W.C.
Electrical Characteristics	230-1-60

2. Select unit based on required cooling capacity.

Enter Net Cooling Capacities table at condenser entering temperature of 95°F (35°C), indoor air entering at 1200 cfm and 67°F (19°C) ewb (entering wet bulb). The unit will provide a total capacity of 34,200 Btuh and a SHC of 24,500 Btuh.

3. Select electric heat.

The required heating capacity is 15,000 Btuh.

Determine additional electric heat capacity in kW.

$$\frac{15{,}000 \text{ Btuh}}{3{,}414 \text{ Btuh/kW}} = 4.4\text{kW of heat required}$$

Enter the electric Heater Packages table for 208/240, single-phase, 50VG-A36 unit. The 5 kW heater at 240v most closely satisfies the heating required. To calculate kW at the 208v, multiply the heater kW by multiplication factor 0.75 found in the Wattage Multiplication Factors table.

5 kW x 0.75 = 3.75 kW

3.75 kW x 3414 = 12802.50 Btuh

4. Determine fan speed and power requirements at design conditions.

Before entering the air delivery tables, calculate the total static pressure required. From the given example, the Wet Coil Pressure Drop Table, and the Filter Pressure Drop Table:

External Static Pressure	0.200 IN. W.C.
Filter	0.000 IN. W.C.
Wet Coil Pressure Drop	0.130 IN. W.C.
Total Static Pressure	0.330 IN. W.C.

Enter the table for Wet Coil Air Delivery—horizontal discharge, 230. At 0.33 IN. W.C. ESP (external static pressure) and medium speed, the fan will deliver 1293 cfm. Adjusting for 208v, the motor delivers 114 cfm (deduct 10%).

5. Select unit that corresponds to power source available.

The Electrical Data Table shows that the unit is designed to operate at 208-1-60.

The new degree of comfort.™

Rheem *Classic*® Series Air Conditioners

RA16 Series

Efficiencies up to 16 SEER/13 EER
Nominal Sizes 1½ to 5 Ton [5.28 to 17.6 kW]
Cooling Capacities 17.3 to 60.5 kBTU
[5.7 to 17.7 kW]

ISO 9001:2008

LISTED

ENERGY STAR

"Proper sizing and installation of equipment is critical to achieve optimal performance. Split system air conditioners and heat pumps must be matched with appropriate coil components to meet Energy Star. Ask your Contractor for details or visit www.energystar.gov."

- New composite base pan – dampens sound, captures louver panels, eliminates corrosion and reduces number of fasteners needed
- Powder coat paint system – for a long lasting professional finish
- Scroll compressor – uses 70% fewer moving parts for higher efficiency and increased reliability
- Modern cabinet aesthetics – increased curb appeal with visually appealing design
- Curved louver panels – provide ultimate coil protection, enhance cabinet strength, and increased cabinet rigidity
- Optimized fan orifice – optimizes airflow and reduces unit sound
- Rust resistant screws – confirmed through 1500-hour salt spray testing
- PlusOne™ **Expanded Valve Space** – 3"-4"-5" service valve space – provides a minimum working area of 27-square inches for easier access
- PlusOne™ **Triple Service Access** – 15" wide, industry leading corner service access – makes repairs easier and faster. The two fastener removable corner allows optimal access to internal unit components. Individual louver panels come out once fastener is removed, for faster coil cleaning and easier cabinet reassembly
- Diagnostic service window with two-fastener opening – provides access to the high and low pressure.
- External gauge port access – allows easy connection of "low-loss" gauge ports
- Single-row condenser coil – makes unit lighter and allows thorough coil cleaning to maintain "out of the box" performance
- 35% fewer cabinet fasteners and fastener-free base – allow for faster access to internal components and hassle-free panel removal
- Service trays – hold fasteners or caps during service calls
- QR code – provides technical information on demand for faster service calls
- Fan motor harness with extra long wires allows unit top to be removed without disconnecting fan wire.

TABLE OF CONTENTS

Standard Feature Table

STANDARD FEATURES							
Feature	**18**	**24**	**30**	**36**	**42**	**48**	**60**
R-410a Refrigerant	√	√	√	√	√	√	√
Maximum SEER	16	16	16	16	16	16	16
Maximum EER	13	13	13	13	13	13	13
Scroll Compressor	√	√	√	√	√	√	√
Field Installed Filter Drier	√	√	√	√	√	√	√
Front Seating Service Valves	√	√	√	√	√	√	√
Internal Pressure Relief Valve	√	√	√	√	√	√	√
Internal Thermal Overload	√	√	√	√	√	√	√
Long Line capability	√	√	√	√	√	√	√
Low Ambient capability with Kit	√	√	√	√	√	√	√
3-4-5 Expanded Valve Space	√	√	√	√	√	√	√
Composite Basepan	√	√	√	√	√	√	√
2 Screw Control Box Access	√	√	√	√	√	√	√
15" Access to Internal Components	√	√	√	√	√	√	√
Quick release louver panel design	√	√	√	√	√	√	√
No fasteners to remove along bottom	√	√	√	√	√	√	√
Optimized Venturi Airflow	√	√	√	√	√	√	√
Single row condenser coil	√	√	√	√	√	√	√
Powder coated paint	√	√	√	√	√	√	√
Rust resistant screws	√	√	√	√	√	√	√
QR code	√	√	√	√	√	√	√
External gauge ports	√	√	√	√	√	√	√
Service trays	√	√	√	√	√	√	√

√ = Standard

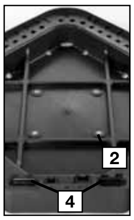
Available SKUs

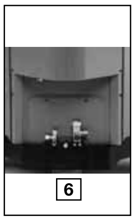
Available Models	Description
RA1618AJ1NA	*Classic®* Series 1 1/2 ton 16 SEER Single-Stage Air Conditioner-208/230/1/60
RA1624AJ1NA	*Classic®* Series 2 ton 16 SEER Single-Stage Air Conditioner-208/230/1/60
RA1630AJ1NA	*Classic®* Series 2 1/2 ton 16 SEER Single-Stage Air Conditioner-208/230/1/60
RA1636BJ1NA	*Classic®* Series 3 ton 16 SEER Single-Stage Air Conditioner-208/230/1/60
RA1642AJ1NA	*Classic®* Series 3 1/2 ton 16 SEER Single-Stage Air Conditioner-208/230/1/60
RA1648AJ1NA	*Classic®* Series 4 ton 16 SEER Single-Stage Air Conditioner-208/230/1/60
RA1660AJ1NA	*Classic®* Series 5 ton 16 SEER Single-Stage Air Conditioner-208/230/1/60
RA1618AJ1NB	*Classic®* Series 1 1/2 ton 16 SEER Single-Stage Air Conditioner w/ High/Low Pressure-208/230/1/60
RA1624AJ1NB	*Classic®* Series 2 ton 16 SEER Single-Stage Air Conditioner w/ High/Low Pressure-208/230/1/60
RA1630AJ1NB	*Classic®* Series 2 1/2 ton 16 SEER Single-Stage Air Conditioner w/ High/Low Pressure-208/230/1/60
RA1636BJ1NB	*Classic®* Series 3 ton 16 SEER Single-Stage Air Conditioner w/ High/Low Pressure-208/230/1/60
RA1642AJ1NB	*Classic®* Series 3 1/2 ton 16 SEER Single-Stage Air Conditioner w/ High/Low Pressure-208/230/1/60
RA1648AJ1NB	*Classic®* Series 4 ton 16 SEER Single-Stage Air Conditioner w/ High/Low Pressure-208/230/1/60
RA1660AJ1NB	*Classic®* Series 5 ton 16 SEER Single-Stage Air Conditioner w/ High/Low Pressure-208/230/1/60
RA1636BC1NB	*Classic®* Series 3 ton 16 SEER Single-Stage Air Conditioner w/ High/Low Pressure-208/230/3/60
RA1642AC1NB	*Classic®* Series 3 1/2 ton 16 SEER Single-Stage Air Conditioner w/ High/Low Pressure-208/230/3/60
RA1648AC1NB	*Classic®* Series 4 ton 16 SEER Single-Stage Air Conditioner w/ High/Low Pressure-208/230/3/60
RA1660AC1NB	*Classic®* Series 5 ton 16 SEER Single-Stage Air Conditioner w/ High/Low Pressure-208/230/3/60

Introduction to RA16 Air Conditioner

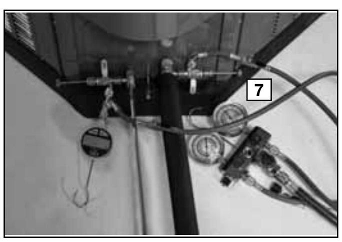
The RA16 is our 16 SEER air conditioner and is part of the Rheem air conditioner product line that extends from 13 to 20 SEER. This highly featured and reliable air conditioner is designed for years of reliable, efficient operation when matched with Rheem indoor aluminum evaporator coils and furnaces or air handler units with aluminum evaporators.

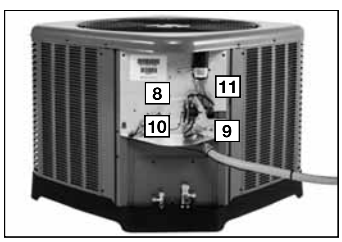
Our unique composite base (1) reduces sound emission, eliminates rattles, significantly reduces fasteners, eliminates corrosion and has integrated brass compressor attachment inserts (2). Furthermore it has incorporated into the design, water management features, means for hand placement (3) for unit maneuvering, screw trays (4) and inserts for lifting off unit pad. (5)



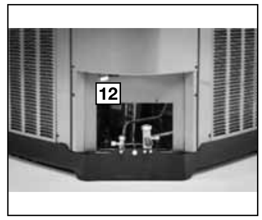


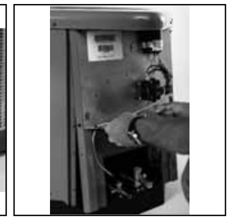
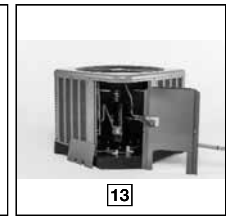
Service Valves (6) are rigidly mounted in the composite base with 3" between suction and discharge valves, 4" clearance below service valves and a minimum of 5" above the service valves, creating industry leading installation ease. The minimum 27 square-inches around the service valves allows ample room to remove service valve schrader prior to brazing, plenty of clearance for easy brazing of the suction and discharge lines to service valve outlets, easy access and hookup of low loss refrigerant gauges (7), and access to the service valve caps for opening. For applications with long-line lengths up to 250 feet total equivalent length, up to 200 feet condenser above evaporator, or up to 80 feet evaporator above condenser, the long-line instructions in the installation manual should be followed.



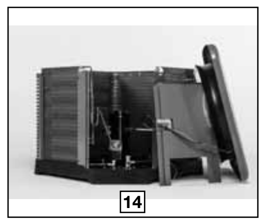


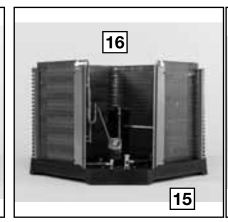
Controls are accessed from the corner of the unit by removing only two fasteners from the control access cover, revealing the industry's largest 15" wide and 14" tall control area (8). With all this room in the control area the high voltage electrical whip (9) can easily be inserted through the right size opening in the bottom of the control area. Routing it leads directly to contractor lugs for connection. The low voltage control wires (10) are easily connected to units low voltage wiring. If contactor or capacitor (11) needs to be replaced there is more than adequate space to make the repair. Furthermore, if high pressure and low pressure model was not purchased but is desired to be installed in the field, the service window (12) can be removed by removing two screws, to access the high and low side schrader fittings for easy field installation. The entire corner can be removed providing ultimate access to install the high and low pressure switch. (13)

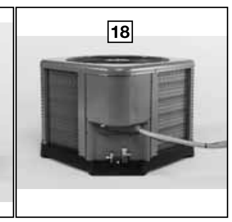


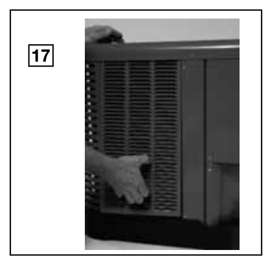
If in the rare event, greater access is needed to internal components, such as the compressor, the entire corner of the unit can be removed along with the top cover assembly to have unprecedented access to interior of the unit (14). Extra wire length is incorporated into each outdoor fan and compressor so top cover and control panel can be positioned next to the unit. With minimal effort the plug can be removed from the compressor and the outdoor fan wires can be removed from the capacitor to allow even more uncluttered access to the interior of the unit (15). Outdoor coil heights range from as short as 27" to 48", aiding access to the compressor. Disassembly to this degree and complete reassembly only takes a first time service technician less than 10 minutes. (15)







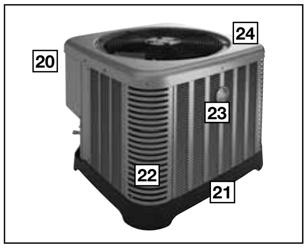
All units utilize strong formed louver panels which provide industry leading coil protection. Louver removal for coil cleaning is accomplished by removing one screw and lifting the panel out of the composite base pan. (17) All RA16 units utilize single row coils (16) making cleaning easy and complete, restoring the performance of the air conditioner back to out of the box performance levels year after year.



The outdoor fan motor has sleeve bearings and is inherently protected. The motor is totally enclosed for maximum protection from weather, dust and corrosion. Access to the outdoor fan is made by removing four fasteners from the fan grille. The outdoor fan can be removed from the fan grille by removing 4 fasteners in the rare case outdoor fan motor fails.

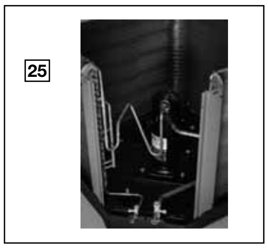
Each cabinet has optimized composite (19) fan orifice assuring efficient and quiet airflow.

The entire cabinet has powder post paint (20) achieving 1000 hour salt spray rating, allowing the cabinet to retain its aesthetics throughout its life.



Scroll compressors with standard internal pressure relief and internal thermal overload are used on all capacities assuring longevity of high efficient and quiet operation for the life of the product.

Each unit is shipped with filter drier for field installation and will trap any moisture or dirt that could contaminate the refrigerant system.



All cabinets have industry leading structural strength due to the composite base pan (21), interlocking corner post (22), formed curved louver panels (23) and drawn top cover (24) making it the most durable cabinet on the market today.

Each RA16 capacity has undergone rigorous psychometric testing to assure performance ratings of capacity, SEER and EER per AHRI Standard 210/240 rating conditions. Also each unit bears the UL mark and each unit is certified to UL 1995 safety standards.

Each unit has undergone specific strain and modal testing to assure tubing (25) is outside the units natural frequency and that the suction and discharge lines connected to the compressor withstand any starting, steady state operation or shut down forces imposed by the compressor.

All units have been sound tested in sound chamber to AHRI 270 rating conditions, and A-weighted Sound Power Level tables produced, assuring units have acceptable noise qualities (see page 8). Each unit has been ran in cooling operation at 95°F and 82°F and sound ratings for the RA16 range from as low as 70.7 dBA to 76.6 dBA.

All units have been ship tested to assure units meet stringent "over the road" shipping conditions.

As manufactured all units in the RA16 family have cooling capability to 55 °F. Addition of low ambient control will allow the unit to operate down to 0°F. Factory testing is performed on each unit. All component parts meet well defined specification and continually go through receiving inspections. Each component installed on a unit is scanned, assuring correct component utilization for a given unit capacity and voltage. All condenser coils are leak tested with pressurization test to 550#'s and once installed and assembled, each units' complete refrigerant system is helium leak tested. All units are fully charged from the factory for up to 15 feet of piping. All units are factory run tested. The RA16 has a 10-year conditional compressor and parts warranty (registration required).

Optional Accessories

(Refer to accessory chart for model #)

Compressor Crankcase Heater

Protects against refrigerant migration that can occur during low ambient operation

Compressor Sound Cover

- Reinforced vinyl compressor cover containing a 1½ inch thick batt of fiberglass insulation
- Open edges are sealed with a one-inch wide hook and loop fastening tape

Compressor Hard Start Kit

- Single-phase units are equipped with a PSC compressor motor, this type of motor normally does not need a potential relay and start capacitor
- Kit may be required to increase the compressor starting torque, in conditions such as low voltage

Low Ambient Kit

- Air conditioners operate satisfactorily in the cooling mode down to 55°F outdoor air temperature without any additional controls
- This Kit can be added in the field enabling unit to operate properly down to 0° in the cooling mode
- Crankcase heater and freezestat should be installed on compressors equipped with a low ambient kit

3"/6"/12"

- Gray high density polyethylene feet are available to raise unit off of mounting surface away from moisture

Low Pressure

- Can be added in field enabling the unit to shut off compressor on loss of charge

NOTE: Unit can be purchased with high and low pressure installed at factory. (Refer to SKU list)

High Pressure

- Can be added in field enabling unit to shut off compressor if unit loses outdoor fan operation.

NOTE: Unit can be purchased with high and low pressure installed at factory. (Refer to SKU list)

Decorative Top

- Can be installed on fan grille

Air Conditioners*

R	A	16	24	A	J	1	N	A	*
Brand	**Product Category**	**SEER**	**Capacity BTU/HR**	**Major Series***	**Voltage**	**Type**	**Controls**	**Minor Series****	**Option Code**
Rheem	A - Air Conditioners	13 - 13 SEER 14 - 14 SEER 16 - 16 SEER 17 - 17 SEER 20 - 20 SEER	18 - 18,000 [5.28 kW] 24 - 24,000 [7.03 kW] 30 - 30,000 [8.79 kW] 36 - 36,000 [10.55 kW] 42 - 42,000 [12.31 kW] 48 - 48,000 [14.07 kW] 60 - 60,000 [17.58 kW]	A - 1st Design B - 2nd Design	J - 1ph, 208-230/60 C - 3ph, 208-230/60	1 - Single-stage 2 - Two-stage V - Inverter	C - Communicating N - Non-Communicating	A - 1st Design	N/A

*See page 3 for available SKU's.

Heat Pumps (For Reference)**

R	P	14	24	A	J	1	N	A	*
Brand	**Product Category**	**SEER**	**Capacity BTU/HR**	**Major Series***	**Voltage**	**Type**	**Controls**	**Minor Series****	**Option Code**
Rheem	P - Heat Pump	13 - 13 SEER 14 - 14 SEER 15 - 15 SEER 17 - 17 SEER 20 - 20 SEER	18 - 18,000 [5.28 kW] 24 - 24,000 [7.03 kW] 30 - 30,000 [8.79 kW] 36 - 36,000 [10.55 kW] 42 - 42,000 [12.31 kW] 48 - 48,000 [14.07 kW] 60 - 60,000 [17.58 kW]	A - 1st Design	J - 1ph, 208-230/60 C - 3ph, 208-230/60 D - 3ph, 460/60	1 - Single-stage 2 - Two-stage V - Inverter P - Piston	C - Communicating N - Non-Communicating	A - 1st Design	N/A

Furnace Coils (For Reference)**

R	C	F	24	17	S	T	A	M	C	A	*
Brand	**Product Category**	**Type**	**Capacity BTU/HR**	**Width**	**Efficiency**	**Metering Device**	**Major Series***	**Orientation**	**Casing**	**Minor Series****	**Option Code**
Rheem	C - Evap Coil	F - Furn Coil H - Air-Handler Coil	24 - 24,000 [7.03 kW] 36 - 36,000 [10.55 kW] 48 - 48,000 [14.07 kW] 60 - 60,000 [17.58 kW]	14 - 14" 17 - 17.5" 21 - 21" 24 - 24.5"	S- Standard Eff. M- Mid Eff. H- High Eff.	T-TXV E-EEV P-Piston	A - 1st Design	M - Multipoise V - Vertical only/ convertible H - Ded. Horizontal only	C - Cased U - Uncased	A - 1st Design	N/A

**Model number ID's are for reference only. See available SKU page of applicable spec sheet for table of available SKU's for a specific model.

[ ] Designates Metric Conversions

90%+ AFUE Gas Furnaces (For Reference)**

R	96	V	A	70	2	3	17	M	S	A
Brand	**Series**	**Motor**	**Major Rev**	**Input BTU/HR**	**Stages**	**Air Flow**	**Cabinet Width**	**Configuration**	**Nox**	**Minor Rev**
Rheem	90 - 90 AFUE 92 - 92 AFUE 95 - 95 AFUE 96 - 96 AFUE 97 - 97 AFUE	V - Variable speed T - Constant Torque (X-13) P - PSC	A - 1st Design	040 - 42,000 [12.31 kW] 060 - 56,000 [16.41 kW] 070 - 70,000 [20.51 kW] 085 - 84,000 [24.62 kW] 100 - 98,000 [28.72 kW] 115 - 112,000 [32.82 kW]	1 - Single-stage 2 - Two-stage M - Modulating	3 - up to 3 ton 5 - 3 1/2 up to 5 ton	14 - 14" 17 - 17.5" 21 - 21" 24 - 24.5"	M - Multi	X - Low Nox S - Standard	A - 1st Design

80% AFUE Gas Furnaces (For Reference)**

R	80	2	V	A	075	3	17	M	S	A
Brand	**Series**	**Stages**	**Motor**	**Major Rev**	**Input BTU/HR**	**Air Flow**	**Cabinet Width**	**Configuration**	**Nox**	**Minor Rev**
Rheem	80 - 80+ AFUE	1 - Single-stage 2 - Two-stage	V - Variable speed T - Constant Torque (X-13) P - PSC premium S - PSC standard	A - 1st Design	050 - 50,000 [15 kW] 075 - 75,000 [22 kW] 100 - 100,000 [29 kW] 125 - 125,000 [37 kW] 150 - 150,000 [44 kW]	3 - up to 3 ton 4 - 2 1/2 to 4 ton 5 - 3 1/2 up to 5 ton	14 - 14" 17 - 17.5" 21 - 21" 24 - 24.5"	M - Multi D - Down Z - Down & zero clearance down flow	X - Low Nox S - Standard	A - 1st Design

Air Handlers (For Reference)**

R	H	1	T	36	17	S	T	A	N	A	A	000	*
Brand	**Product Category**	**Stages of Airflow**	**Motor Type**	**Capacity BTU/HR**	**Width**	**Coil Size**	**Metering Device**	**Major Series***	**Controls**	**Voltage**	**Minor Series****	**Factory Heat Cap**	**Option Code**
Rheem	H - Air Handler	1 - Single-Stage 2 - Two-Stage M - Modulating	V - Variable Speed T - Constant Torque P - PSC	24 - 24,000 [7.03 kW] 36 - 36,000 [10.55 kW] 48 - 48,000 [14.07 kW] 60 - 60,000 [17.58 kW]	14 - 14" 17 - 17.5" 21 - 21" 24 - 24.5"	S - Standard Eff. M - Mid Eff. H - High Eff.	T - TEV E - EEV P - Piston	A - 1st Design	C -Communicating N -Non-comm	A - 1ph, 115/60 J - 1ph, 208-240/60 D - 3ph, 480/60	A - 1st Design	00 - no factory heat with option code	*TBD

**Model number ID's are for reference only. See available SKU page of applicable spec sheet for table of available SKU's for a specific model.

[ ] Designates Metric Conversions

Physical Data

PHYSICAL DATA							
Model No.	**RA1618A**	**RA1624A**	**RA1630A**	**RA1636B**	**RA1642A**	**RA1648A**	**RA1660A**
Nominal Tonnage	1.5	2.0	2.5	3.0	3.5	4.0	5.0
Valve Connections							
Liquid Line O.D. – in.	3/8	3/8	3/8	3/8	3/8	3/8	3/8
Suction Line O.D. – in.	3/4	3/4	3/4	3/4	7/8	7/8	7/8
Refrigerant (R410A) furnished oz.[1]	82	87	113	108	150	174	201
Compressor Type	Scroll						
Outdoor Coil							
Net face area – Outer Coil	12.1	14.8	16.2	17.29	24.2	28.3	32.3
Net face area – Inner Coil	—	—	—	—	—	—	—
Tube diameter – in.	3/8	3/8	3/8	3/8	3/8	3/8	3/8
Number of rows	1	1	1	1	1	1	1
Fins per inch	22	22	22	22	22	22	22
Outdoor Fan							
Diameter – in.	20	24	26	24	26	26	26
Number of blades	3	2	3	3	3	3	3
Motor hp	1/8	1/6	1/5	1/6	1/3	1/3	1/3
CFM	2405	2850	3915	3300	4450	4660	4775
RPM	1095	851	710	825	829	828	795
watts	155	147	102	167	193	198	239
Shipping weight – lbs.	147	149	159	199	212	232	247
Operating weight – lbs.	140	142	152	192	205	225	240

Electrical Data

Line Voltage Data (Volts-Phase-Hz)	**208/230-1-60**	**208/230-1-60**	**208/230-1-60**	**208/230-1-60**	**208/230-1-60**	**208/230-1-60**	**208/230-1-60**
Maximum overcurrent protection (amps)[2]	20	20	30	35	40	40	50
Minimum circuit ampacity[3]	12	14	18	21	25	25	34
Compressor							
Rated load amps	9	10.3	12.8	15.4	16.7	17	23.7
Locked rotor amps	47.5	61.6	67.3	83.9	109	123.9	152.5
Condenser Fan Motor							
Full load amps	0.7	0.6	1.4	0.8	3.5	5.3	3.5
Locked rotor amps	1.3	1.5	2.3	1.5	—	2.3	—
Line Voltage Data (Volts-Phase-Hz)	—	—	—	208/230-3-60	208/230-3-60	208/230-3-60	208/230-3-60
Maximum overcurrent protection (amps)[2]	—	—	—	20	25	30	35
Minimum circuit ampacity[3]	—	—	—	14	18	21	24
Compressor							
Rated load amps	—	—	—	10.4	11.2	13.6	15.9
Locked rotor amps	—	—	—	73	88	83.1	110
Condenser Fan Motor							
Full load amps	—	—	—	0.8	3.5	3.5	3.5
Locked rotor amps	—	—	—	1.5	—	2.3	—

[1]Refrigerant charge sufficient for 15 ft. length of refrigerant lines. For longer line set requirements see the installation instructions for information about set length and additional refrigerant charge required.
[2]HACR type circuit breaker of fuse.
[3]Refer to National Electrical Code manual to determine wire, fuse and disconnect size requirements.

Accessories

Model No.		RA1618	RA1624	RA1630	RA1636	RA1642	RA1648	RA1660
Compressor crankcase heater*		44-17402-44	44-17402-44	44-17402-44	44-17402-44	44-17402-45	44-17402-45	44-17402-45
Low ambient control		RXAD-A08	RXAD-A08	RXAD-A08	RXAD-A08	RXAD-A08	RXAD-A08	RXAD-A08
Freeze Stat		50313	50313	50313	50313	50313	50313	50313
Compressor sound cover		68-23427-26	68-23427-26	68-23427-26	68-23427-26	68-23427-25	68-23427-25	68-23427-25
Compressor hard start kit		SK-A1	SK-A1	SK-A1	SK-A1	SK-A1	SK-A1	SK-A1
Low pressure control		RXAC-A07	RXAC-A07	RXAC-A07	RXAC-A07	RXAC-A07	RXAC-A07	RXAC-A07
High pressure control		RXAB-A07	RXAB-A07	RXAB-A07	RXAB-A07	RXAB-A07	RXAB-A07	RXAB-A07
Heat pump Riser 6 in.		686020	686020	686020	686020	686020	686020	686020
Liquid Line Solenoid (24 VAC, 50/60 Hz)	Solenoid Valve	200RD2T3TVLC	200RD2T3TVLC	200RD2T3TVLC	200RD2T3TVLC	200RD2T3TVLC	200RD3T3TVLC	200RD3T3TVLC
	Solenoid Coil	61-AMG24V	61-AMG24V	61-AMG24V	61-AMG24V	61-AMG24V	61-AMG24V	61-AMG24V
Liquid Line Solenoid (120/240 VAC, 50/60 Hz)	Solenoid Valve	200RD2T3TVLC	200RD2T3TVLC	200RD2T3TVLC	200RD2T3TVLC	200RD2T3TVLC	200RD3T3TVLC	200RD3T3TVLC
	Solenoid Coil	61-AMG120/240V	61-AMG120/240V	61-AMG120/240V	61-AMG120/240V	61-AMG120/240V	61-AMG120/240V	61-AMG120/240V
Classic Top Cap w/Label		91-101123-21	91-101123-21	91-101123-21	91-101123-21	91-101123-21	91-101123-21	91-101123-21

*Crankcase Heater recommended with Low Ambient Kit.

Weighted Sound Power Level (dBA)

Unit Size - Voltage, Series	Standard Rating (dBA)	TYPICAL OCTAVE BAND SPECTRUM (dBA without tone adjustment)						
		125	250	500	1000	2000	4000	8000
RA1618A	76.6	53.4	60	65.7	66.3	64.2	58.8	52.6
RA1624A	75.5	49.9	58.4	61.4	64.1	61.6	57.3	50.8
RA1630A	74.3	48.4	57.4	62.6	64.5	61.5	56.5	51.5
RA1636B	75	51.6	58.7	63.1	66.1	62.3	59	55.7
RA1642A	70.7	47.5	51	60.2	60.7	59.7	53.6	50.4
RA1648A	74.3	51.2	56.1	64.5	65.6	60.7	56.6	52.6
RA1660A	74.6	50.1	55.1	65.6	64.8	63.2	57.4	56.4

NOTE: Tested in accordance with AHRI Standard 270-08 (not listed in AHRI)

Thermostats

200-Series *
Programmable

300-Series *
Deluxe
Programmable

400-Series *
Special Applications/
Programmable

500-Series *
Communicating/
Programmable

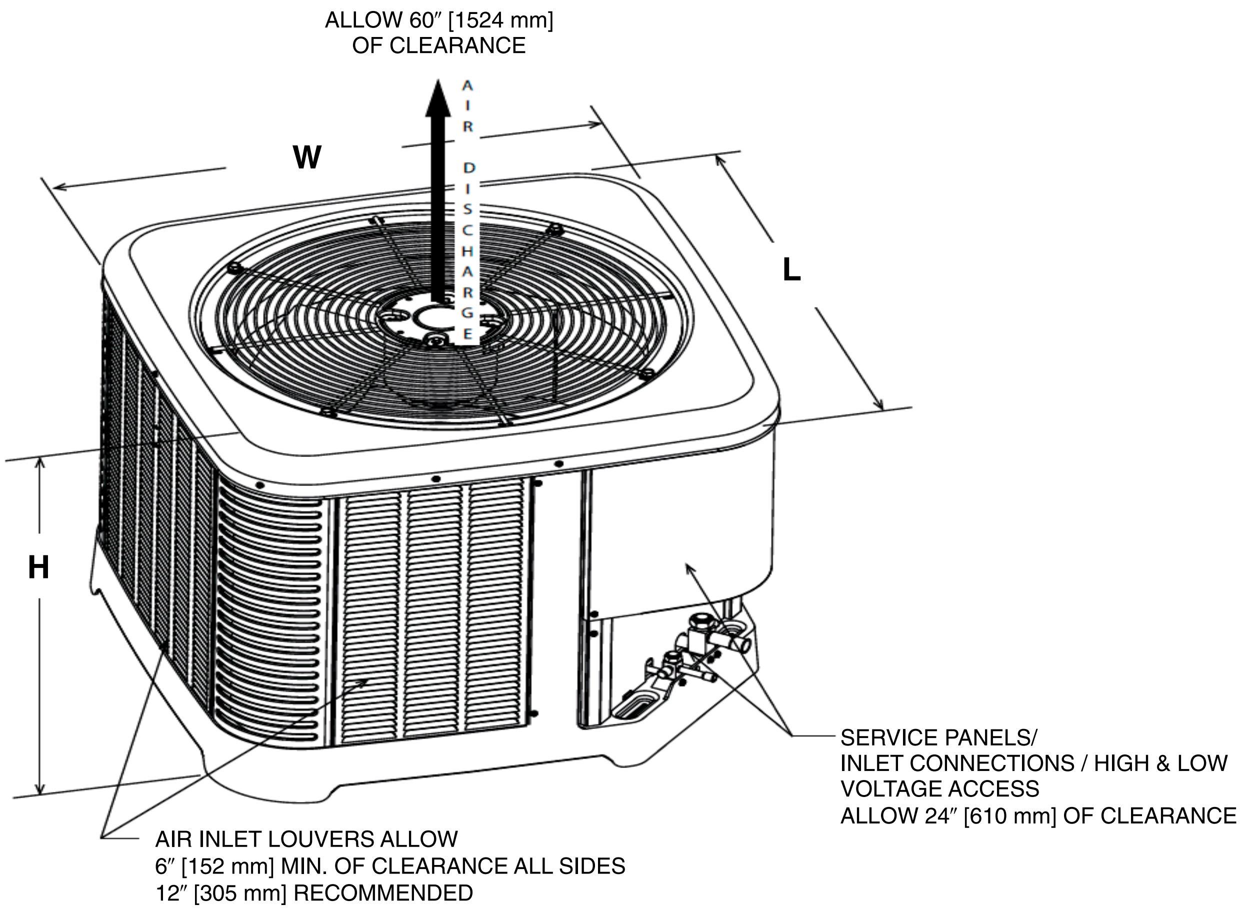
Brand		Descripter (3 Characters)	Series (3 Characters)	System (2 Characters)	Type (2 Characters)
RHC	**-**	**TST**	**213**	**UN**	**MS**
RHC=Rheem		TST=Thermostat	200=Programmable 300=Deluxe Programmable 400=Special Applications/ Programmable 500=Communicating/ Programmable	GE=Gas/Electric UN=Universal (AC/HP/GE) MD=Modulating Furnace DF=Dual Fuel CM=Communicating	SS=Single-Stage MS=Multi-Stage

** Photos are representative. Actual models may vary.*

For detailed thermostat match-up information, see specification sheet form number T11-001.

Unit Dimensions

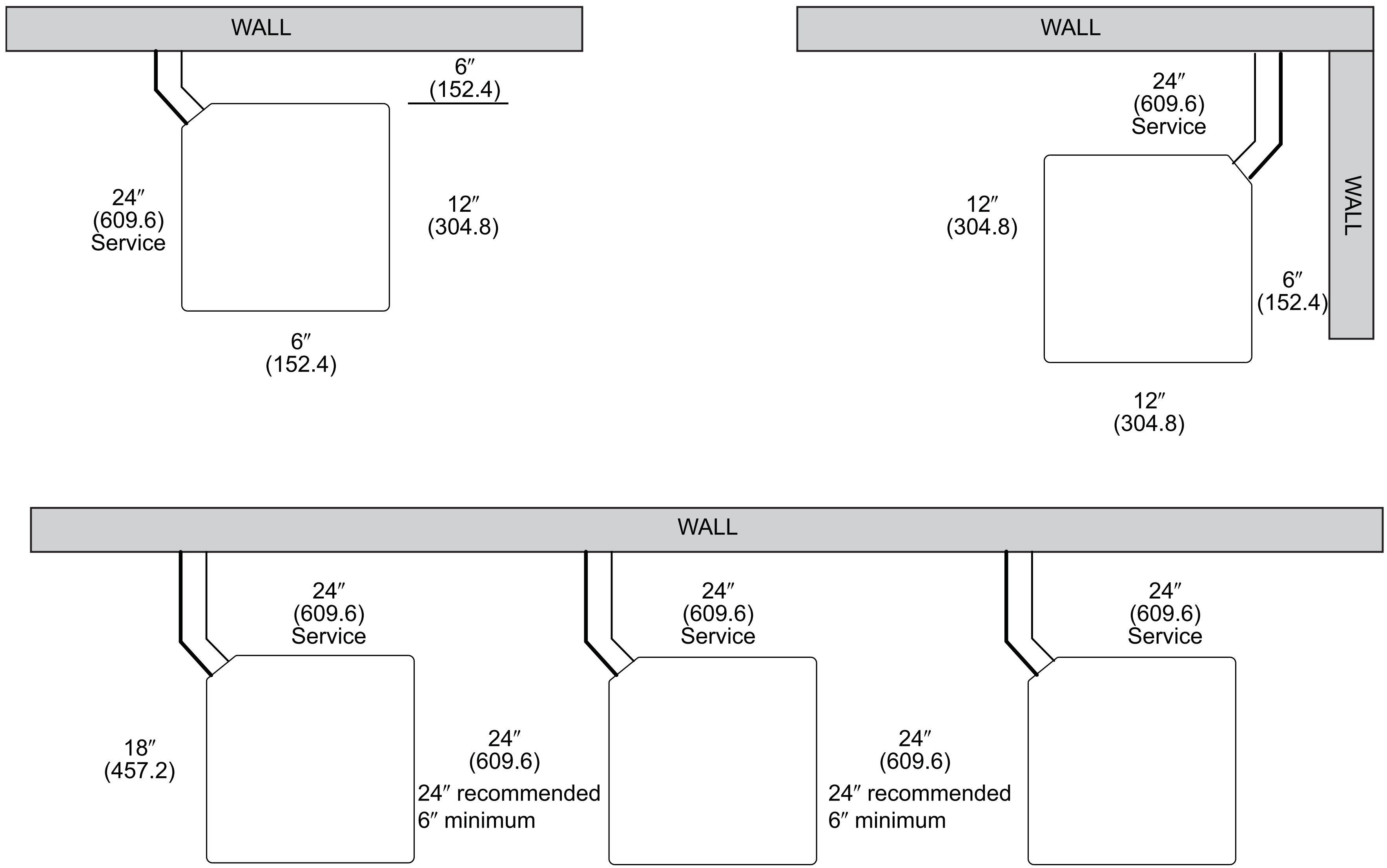
MODEL NO.	OPERATING						SHIPPING					
	H (Height)		L (Length)		W (Width)		H (Height)		L (Length)		W (Width)	
	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm
RA1618A	27	685	29.75	755	29.75	755	27.375	695	32.25	819	32.25	819
RA1624A	27	685	33.75	857	33.75	857	27.375	695	36.25	921	36.25	921
RA1630A	27	685	35.75	908	35.75	908	27.375	695	38.25	972	38.25	972
RA1636B	31	787	33.75	857	33.75	857	31.375	797	36.25	921	36.25	921
RA1642A	39	990	35.75	908	35.75	908	39.375	1000	38.25	972	38.25	972
RA1648A	45	1143	35.75	908	35.75	908	45.375	1153	38.25	972	38.25	972
RA1660A	51	1295	35.75	908	35.75	908	51.375	1305	38.25	972	38.25	972



[ ] Designates Metric Conversions

ST-A1226-02-00

CLEARANCES



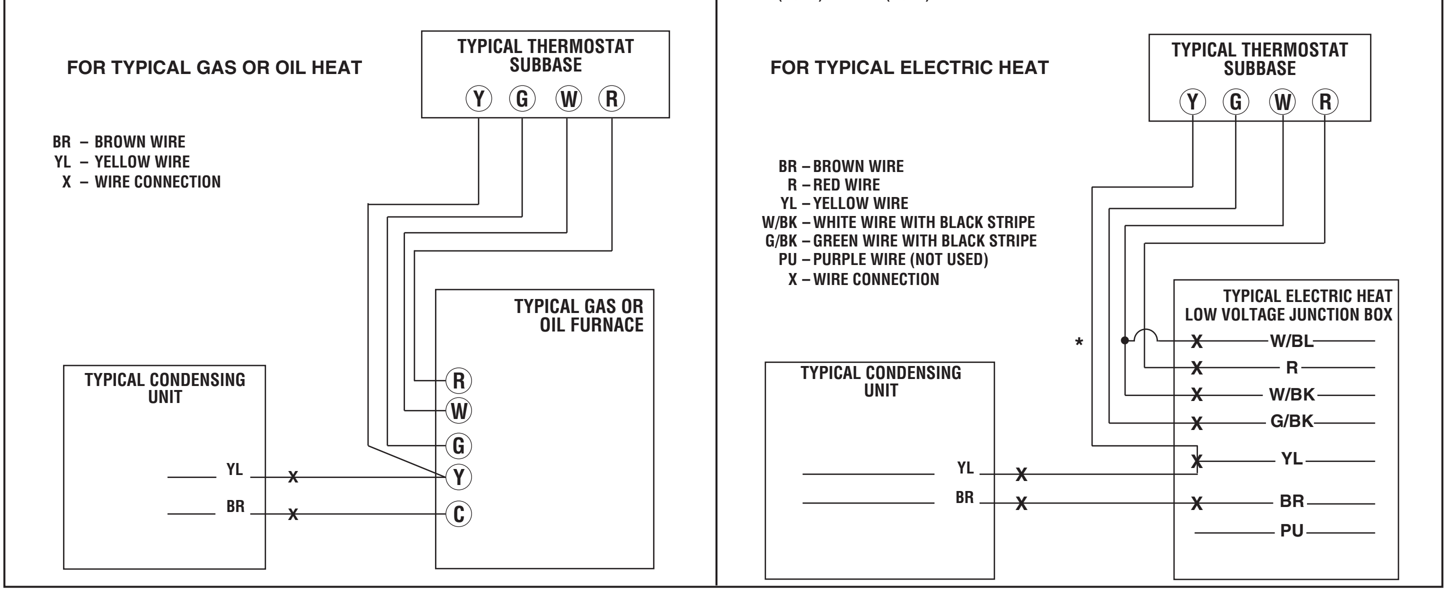
NOTE: NUMBERS IN () = mm

IMPORTANT: When installing multiple units in an alcove, roof well or partially enclosed area, ensure there is adequate ventilation to prevent re-circulation of discharge air.

ST-A1225-01-00

Control Wiring

FIGURE 2
CONTROL WIRING FOR GAS OR OIL FURNACE



Application Guidelines

1. Intended for outdoor installation with free air inlet and outlet. Outdoor fan external static pressure available is less than 0.01 -in. wc.
2. Minimum outdoor operation air temperature for cooling mode without low-ambient operation accessory is 55°F (12.8°C).
3. Maximum outdoor operating air temperature is 125°F (51.7°C).
4. For reliable operation, unit should be level in all horizontal planes.
5. Use only copper wire for electric connections at unit. Aluminum and clad aluminum are not acceptable for the type of connector provided.
6. Do not apply capillary tube indoor coils to these units.
7. Factory – supplied filter drier must be installed.

Appendix E

Vibration Calculations

Propogation

V_{ref} 1E-06
Crest Factor (PPV 4
Soil Type default Default, Hard, or competent (competent soils are sands, clays, silty clays, gravel, silts, or weathered rock)
n value 1.1

Equipment	PPV_{ref} (in/sec)	Lv_{ref} (VdB)	RMS_{ref} (in/sec)	Ref Distance (feet)	Distance (feet)	PPV_x (in/sec)	Lv_x (VdB)	RMS_x (in/sec)
Large bulldozer	0.089	87	0.022	25	175	0.010	68	0.003
Loaded trucks	0.076	83	0.014	25	175	0.009	64	0.002
Jack hammer	0.035	79	0.009	25	175	0.004	60	0.001
Small bulldozer	0.003	58	0.001	25	175	0.000	39	0.000