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November 2, 2022

Mr. Rick España
RNT Architects
363 Fifth Avenue, Suite 202
San Diego, CA 92101

Reference: Carlsbad Orion Center Project Noise Analysis (Project Number EIA-15-02; RECON Number 7663)

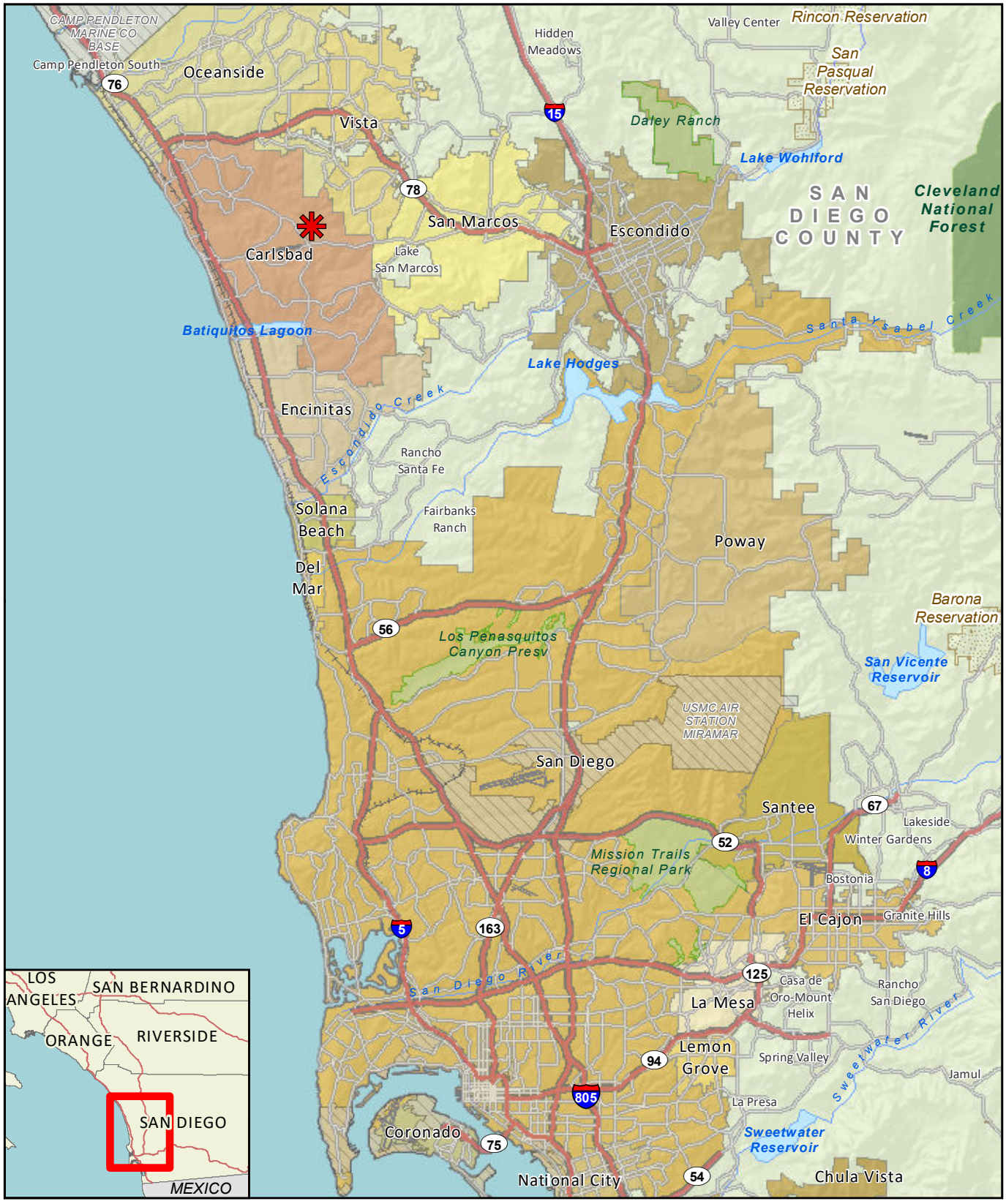
Dear Mr. España:

The purpose of this report is to evaluate potential noise impacts associated with construction and operation of the Carlsbad Orion Center Project (project). This analysis identifies noise-generating activities associated with project construction and operation, estimates noise levels at proximate sensitive receivers and habitat, and assesses whether the project would require mitigation to avoid or minimize impacts.

Project Description

The project would be located on 8.5 acres of developed land at 2600 Orion Way, in the city of Carlsbad, California. Figure 1 provides the regional location of the project site. The project site is zoned Open Space (OS) and the General Plan land use designation is Public (P). The 8.5-acre project site is predominately asphalt-paved, with several islands with ornamental trees scattered throughout. Existing development on the site includes a fleet maintenance building at the northwest corner, an open air vehicle washing and refueling station near the center of the project site, and a central equipment plant that houses a cooling tower, boiler, and generator at the southeast corner of the project site. The site is currently used for fleet maintenance, parking and outdoor storage of vehicles, equipment, and materials. The project site and surrounding land uses are shown in Figure 2.

The existing site orientation, including the vehicle washing and fueling station and parking areas, was not strategically planned; rather, features were added individually over the past 40 years. The goal of the project is to construct a new operations master planned facility that would efficiently accommodate existing and future needs of the: (1) Construction Management and Inspection Division; (2) Public Works Fleet & Facilities Division (Street, Storm Drain, Facilities and Fleet Maintenance and Facilities Engineering); (3) Public Works Utilities Division (Water, Recycled Water, Wastewater Collection and Operations, Utilities Engineering and Asset Management); and (4) Parks and Recreation Department (Parks and Tree Maintenance). The proposed facility would accommodate 143 staff members from these existing facilities. The project would free up three existing sites in the city for redevelopment: The Public Works Utilities Division at 5950 El Camino Real, the Public Works Fleet & Facilities Division at 405 Oak Avenue, and the Parks and Tree Maintenance Division of the Parks & Recreation Department at 1166 Carlsbad Village Drive. However, these three abandoned sites would remain vacated and unchanged until redevelopment were proposed and approved as separate actions independent of this project.



Project Location

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FIGURE 1
Regional Location

Image Source: Nearmap (flown September 2021)

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Project Boundary

FIGURE 2

Project Location on Aerial Photograph

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Figure 3 shows the proposed site plan. The project includes the following development components:

- One 41,900-square-foot (SF) two-story office operations building;
- Two 9,870 SF warehouse/shop buildings, one for Public Works Utilities and one for Public Works Fleet & Facilities totaling 19,740 SF;
- One 5,950 SF warehouse/shop building for the Parks & Recreation Department;
- One 11,230 SF covered outdoor storage area for Public Works Utilities, Public Works Fleet & Facilities and Parks & Recreation personnel;
- One 92,300 SF four-story parking structure with 229 vehicle spaces; Within the first floor of the parking structure, 6,500 SF of enclosed conditioned space would be used for evidence storage by the Police Department;
- One 4,050 SF stacked vehicle covered storage area used for vehicles impounded by the Police Department; and
- One 640 SF carwash.

The total proposed new building area would be 175,810 SF. The two-story office building would be located near the southwest corner of the project site at the intersection of Orion Street and Orion Way. The first story of the office building would consist of shared office space with a south-facing front entrance oriented toward visitor parking north of Orion Way. The first floor would contain a lobby, offices, conference rooms, locker rooms, break rooms, and restrooms. Two outdoor patio areas would be accessible from the break rooms on the north side of the building. The second floor would consist of office space. At the eastern end of the second floor, a pedestrian bridge would provide a walkway connection to the second story of the proposed parking structure. The project would introduce eight biofiltration basins and two modular wetlands with combined pollutant control and flow control to satisfy hydromodification requirements.

The three warehouse/shop buildings would be located behind the two-story office building, with surface parking available between them. The building for the Public Works Utilities Division would be on the western end of the site. The building for the Public Works Fleet & Facilities Division would be centrally located. The building for the Parks & Recreation Department would be located between the Public Works Fleet & Facilities warehouse building and the four-level parking structure. The first story of the warehouse/shop buildings would contain warehousing area and storage rooms. The second floors of the Public Works Utilities and Public Works Fleet & Facilities buildings would each include a 2,400 SF mezzanine level.

In addition to the new facilities described above, the project would make the following improvements to existing facilities on-site:

- Remodel an existing fleet maintenance building in the northwestern portion of the project site to raise the northeastern portion of the roof to match the building height of the remainder of the building, expand the building by a maximum of 530 SF, and make interior improvements. The remodel was approved administratively in 2018. Since it would be designed and constructed with the Orion Center, the remodel is being considered with it. However, the remodel of the fleet maintenance building and construction of the Orion Center are separate projects and are not dependent on one other.

- Improve and repurpose an existing 20,000 SF materials storage yard within the eastern portion of the project site.
- Add a shade canopy and replace the existing fuel dispensers at the existing fueling station.

While the visitor parking would be accessed through Orion Way, employee parking to the north of the office building would be accessed through a gated entrance off the intersection of Orion Street and Impala Drive. The project would extend sidewalks along the northern side of Orion Way in the vicinity of the project site. Consistent with City of Carlsbad (City) policies on environmental sustainability, the office building would be designed to achieve equivalence with the Leadership in Energy and Environmental Design (LEED) rating level of silver or higher. Solar photovoltaic (PV) panels would be installed on the roof of the office building and the parking structure to support a goal of reaching a net-zero energy use facility.

The existing western fleet yard would include an upgraded and reoriented vehicle washing and refueling station and uncovered and covered storage areas. The improved vehicle washing and refueling station would be at the same location as the existing station and would include a shade canopy and an improved containment system for runoff of chemicals used for vehicle cleaning.

Proposed features that would be implemented within the existing eastern fleet yard include a 30-stall stacked parking structure, for impounded vehicles, an area for large vehicle parking, and the existing central equipment plant for standby generators, boilers, and cooling towers to support the facility. Whereas the western fleet yard would be primarily shared by the Public Works and Parks & Recreation Departments, most of the eastern fleet yard would support a large materials yard, employee parking for the entire project and a vehicle impound area for the City's Police Department. The eastern fleet yard would be accessed through a gate from the visitor parking lot off Orion Way.

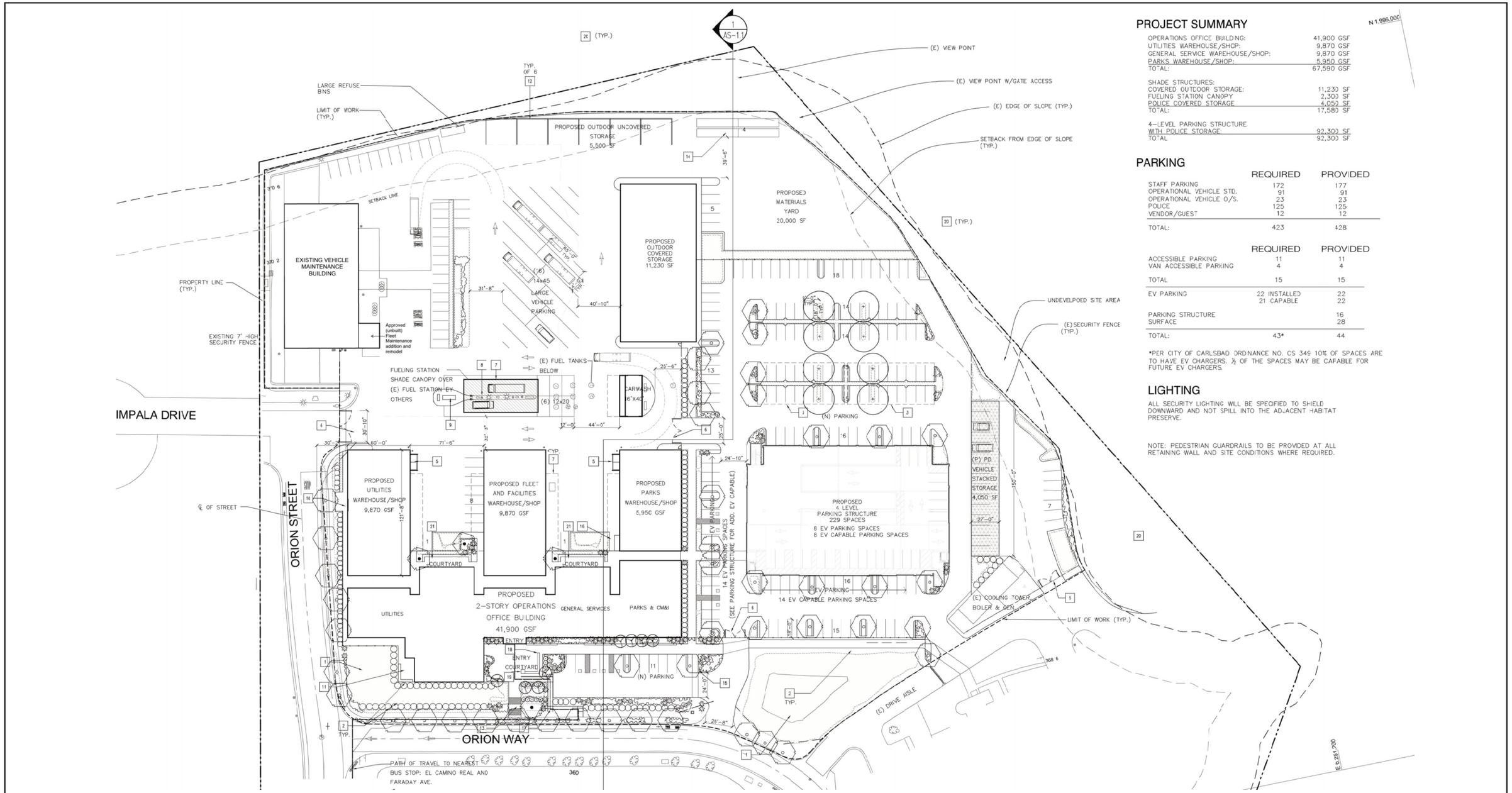
Project construction would last for approximately 18 months. Construction would begin in fall 2024 at the earliest. All aspects of the project, including the remodel of the existing fleet maintenance building, are anticipated to be constructed in a single phase.

Project Setting

The project site and surrounding areas to the west and south are zoned either Open Space (OS) or Industrial (M) and have land use designations of Open Space (OS), Public (P) or Planned Industrial (PI). Normally, sensitive receivers would not be located within these zoning or land use designations. However, the La Posada de Guadalupe de Carlsbad Shelter is located immediately northwest of the project site and is considered to be a potentially sensitive receiver. The shelter provides short-term housing and case management for up to 50 homeless men and long-term housing for employed farm workers in North County.

Carlsbad Oaks North Preserve is located to the north and east of the project site. Features of Carlsbad Oaks North Preserve Canyon include Agua Hedionda Creek and Oak Lake. Carlsbad Oaks North Preserve is connected to an urban canyon system to the northeast and northwest of the project site. The City's Habitat Management Plan (HMP), which is a subarea plan for the North County Multiple Habitat Conservation Plan (MHCP), identifies Carlsbad Oaks North Preserve as a core conservation area.

Source: RNT Architects



GENERAL NOTES

A. ALL ITEMS ARE NEW U.O.N.
B. SEE CIVIL DRAWINGS FOR GRADING, DRAINAGE AND UTILITY PLANS.
C. SEE LANDSCAPE DRAWINGS FOR PLANTING AND LANDSCAPE RESTORATION PLANS
D. BUS STOPS: NEAREST BUS STOPS ARE ACROSS THE STR
E. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING EMERGENCY VEHICLE ACCESS DURING CONSTRUCTION.
F. CONTRACTOR SHALL PROTECT EXISTING NATIVE TREES AND VEGETATION FROM DAMAGE DURING CONSTRUCTION.
G. ALL PAVING AND FINISH GRADES SHALL SLOPE AWAY FROM BUILDINGS.

KEY NOTES

1 BIOSWALE PLANTER / BASIN, SEE CIVIL DRAWINGS
2 RETAINING WALL, SEE CIVIL DRAWINGS
3 OPTIONAL PARKING SHADE CANOPIES W/ P.V.SOLAR PANELS
4 (E) STORAGE CONTAINERS AFTER RELOCATION
5 CMU TRASH ENCLOSURE
6 SECURITY GATE
7 FUELING STATION CANOPY BY OTHERS
8 (E) FUELING STATION TO BE REPLACED BY OTHERS
9 BACK-UP GENERATOR
10 CONC. LOADING DOCK
11 OUTDOOR MEETING DECK
12 CIP CONC. MATERIAL ENCLOSURE WALLS
13 CIP CONC. STAIRS
14 (E) CONTAINERS
15 RIDE/SHARE DROP OFF AREA
16 LONG-TERM BIKE LOCKER STORAGE
17 ACCESSIBLE RAMP
18 BIKE/SCOOTER STORAGE & SEATING AREA
19 TRANSIT INFORMATION KIOSK
20 SENSITIVE HABITAT
21 OUTDOOR EMPLOYEE EATING AREA

LEGEND

(N) 6' HIGH SECURITY FENCE
LIMIT OF WORK
PATH OF TRAVEL TO NEAREST BUS STOP

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FIGURE 3
Site Plan

Noise Terminology

In its most basic form, a continuous sound can be described by its frequency (pitch) and its amplitude (loudness). The human ear is not equally sensitive to all frequencies within the sound spectrum. When discussing human perception of noise, the fundamental unit of how loud a noise is the A-weighted decibel (dB[A]). The A-weighted decibel scale corresponds to sound energy on a logarithmic scale and also include a frequency correction to approximate the loudness as perceived average young ear. As the A-weighted decibel was developed to approximate human perception of loudness, it is a common metric for noise measurements and standards.

The impact of noise is not a necessarily a function of loudest instantaneous noise level. Most common noise sources generate intermittent or varying noise. Consequently, a variety of noise descriptors have been developed to describe the noise level in a given interval or give consideration to the time of day when noise occurs. Noise descriptors used in the analysis include the equivalent noise level (L_{eq}), maximum noise level (L_{max}), and the community noise equivalent level (CNEL).

- L_{eq} is the equivalent steady-state noise level in a stated period of time that is calculated by averaging the acoustic energy over a time period; when no period is specified, a 1-hour period is assumed. Other periods, such as the $L_{eq(8h)}$ may occasionally be useful for discussing activities, such as construction, which are highly intermittent with brief periods of high noise levels throughout the day.

- L_{max} is the maximum noise level during a stated period of time or from a specific noise source. L_{max} is often used to describe the maximum noise level during a noise measurement or the noise level generated by a piece of equipment under peak load.

- CNEL is a 24-hour equivalent sound level with an additional 5 dB(A) penalty to noise occurring during evening hours, between 7:00 P.M. and 10:00 P.M., and a 10 dB(A) penalty is added to noise occurring during the night, between 10:00 P.M. and 7:00 A.M. These increases for certain times are intended to account for the added sensitivity of humans to noise during the evening and night. The CNEL metric is commonly used to assess land use compatibility.

Applicable Regulations

General Plan Performance Standards

The City's General Plan Performance Standards Table identifies noise level limits for all noise sources other than transportation and construction activities. Noise level limits establish a maximum L_{eq} of 55 dB during the daytime (7:00 A.M. to 10:00 P.M.) and 45 dB at night (10:00 P.M. to 7:00 A.M.). Additionally, the L_{max} may not exceed 75 dB during the daytime and 65 dB at night. Noise level limits are measured at the property line of the noise source or sensitive receiver as applicable.

Municipal Code Construction Hour Limitations

The City's Construction Hour Limitations, specified in Municipal Code Section 8.48.010, prohibit construction activities between the hours of 6:00 P.M. and 7:00 A.M. Monday through Friday, before 8:00 A.M. on Saturday, all day Sunday, and on any federal holiday.

Common Habitat Preservation Policies

The U.S. Fish and Wildlife Service and other resource agencies, such as the California Department of Fish and Wildlife, require limitation of noise levels to the habitats of threatened and endangered noise-sensitive bird species during their breeding seasons. Although no formal standards have been issued by these agencies, the precedent set over many years is that noise levels generated by a proposed project shall not exceed 60 dB(A) L_{eq} at the designated habitat or a known nesting site. Where the existing ambient noise level exceeds 60 dB(A) L_{eq}, the project noise level would be limited to less than or equal to the ambient noise level.

Future Acoustic Environment

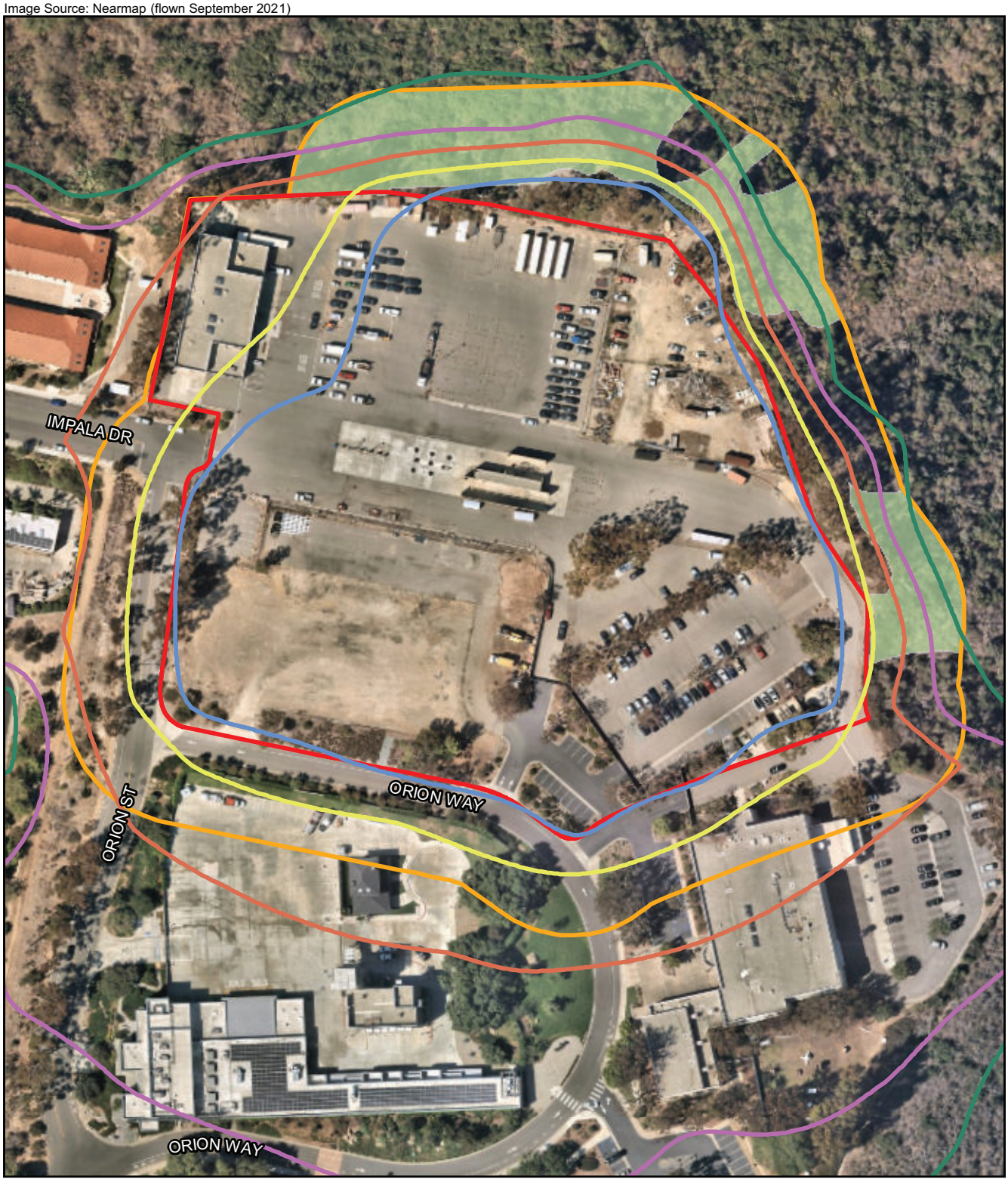
Noise level predictions and contour mapping were developed using noise modeling software, SoundPLAN Essential, version 4.1 (Navcon Engineering 2018). SoundPLAN calculates noise propagation based on the International Organization for Standardization method (ISO 9613-2 – Acoustics, Attenuation of Sound during Propagation Outdoors). The model calculates noise levels at selected receiver locations using input parameter estimates such as total noise generated by each noise source; distances between sources, barriers, and receivers; and shielding provided by intervening terrain, barriers, and structures. The model outputs can be developed as noise level contour maps or noise levels at specific receivers. In all cases, receivers were modeled at 5 feet above ground elevation, which represents the average height of the human ear.

Construction

Project construction would result in temporary noise level increases from noise generated by project construction equipment used for site preparation, grading, building construction, and paving and vehicles hauling construction materials to and from the site.

Construction equipment noise is commonly approximated as a point source at the center of construction activities that would attenuate at approximately 6 dB(A) for every doubling of distance. Individual pieces of diesel-powered construction equipment with a diesel engine typically generates maximum noise levels from 80 to 90 A-weighted decibels (dB[A]) L_{max} at a distance of 50 feet (Federal Highway Administration [FHWA] 2006, Federal Transit Administration [FTA] 2006); however, due to equipment movement, load cycles, and breaks for the operators and for non-equipment tasks such as measurement, hourly average noise levels associated with conventional construction activities generates the equivalent of approximately 82 dB(A) L_{eq} at 50 feet from the acoustic center of construction activity (FHWA 2006; FTA 2006). To reflect the nature of grading and construction activities, equipment was modeled as an area source distributed over the project footprint. Construction noise contours were modeled using SoundPLAN, and are shown in Figure 4. SoundPLAN data is contained in Attachment 1.

Image Source: Nearmap (flown September 2021)



Construction Noise
- 50 dB(A) Leq
- 55 dB(A) Leq
- 60 dB(A) Leq
- 65 dB(A) Leq
- 70 dB(A) Leq

- Project Boundary
- Survey Area
- Coastal Sage Scrub

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FIGURE 4

Construction Noise Contours

Construction Noise at Proximate Land Uses

Proximate land uses include the La Posada de Guadalupe de Carlsbad Shelter approximately 380 feet to the northwest, the Joint First Responders Training Facility approximately 380 feet to the south, and the Safety Center approximately 420 feet to the southeast. As shown in Figure 4, construction noise levels would not exceed 75 dB(A) L_{eq} beyond the project boundary, and noise levels at the nearby uses would be less than 65 dB(A) L_{eq}.

As discussed previously, City Municipal Code Section 8.48.010 prohibits construction activities between the hours of 6:00 P.M. and 7:00 A.M. Monday through Friday, before 8:00 A.M. on Saturday, all day Sunday, and on any federal holiday. As project construction activities would be limited to within hours specified in Municipal Code Section 8.48.010, temporary noise level increases associated with project construction would result in less than significant noise impacts at the La Posada de Guadalupe de Carlsbad Shelter and other adjacent land uses.

Construction Noise at Habitat

As discussed previously, the project site is adjacent to Carlsbad Oaks North Preserve, which is a core conservation area of the City's HMP. The project site consists predominantly of urban/developed land, with a minor amount of non-native and ornamental vegetation including eucalyptus trees (*Eucalyptus spp.*) and acacia trees (*Acacia spp.*). Coastal sage scrub occurs on a steep slope immediately adjacent to the northeastern edge of the project site. Coastal sage scrub is considered a sensitive habitat by the HMP. There is potential for coastal California gnatcatcher (*Polioptila californica californica*) and nesting bird species, including southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), to nest in the coastal sage scrub. There is low potential for coastal California gnatcatcher to nest to the south or west of the project site, due to existing development and lack of suitable habitat. Raptors, including Cooper's hawk (*Accipiter cooperii*), have the potential to nest within the eucalyptus trees.

As shown in Figure 4, construction noise levels would exceed 60 dB(A) L_{eq} at the adjacent habitat. Should construction activities occur during the breeding season for nesting birds (March 1 through August 15), construction noise impacts to occupied habitat would be significant.

As the project site is on a mesa with steep slopes to the north and east, topography would shield much of the habitat on the slopes to the north and east of the project site from construction noise; only a small area of off-site habitat atop the mesa would be impacted by construction noise. Mitigation measures have been identified in the Biological Resource Report completed for the project that would reduce impacts on coastal California gnatcatcher, raptors (including Cooper's hawk), and nesting bird species (including southern California rufous crowned sparrow) to a level less than significant.

Operation

As discussed above, the City's General Plan Performance Standards Table identifies noise level limits for all noise sources other than transportation and construction activities. Noise level limits establish a maximum L_{eq} of 55 dB during the daytime (7:00 A.M. to 10:00 P.M.) and 45 dB at night (10:00 P.M. to 7:00 A.M.) at noise sensitive uses. These limits apply to all noise generated on-site, existing and proposed. The nearest sensitive receiver where these limits apply is the La Posada de Guadalupe de Carlsbad Shelter. These limits do not apply at the adjacent non-sensitive land uses including the police station, safety training center, and adjacent

commercial uses. In addition to these limits, an hourly noise level limit of 60 dB(A) L_{eq} applies at the adjacent habitat, as discussed above. Noise level contours due to existing and proposed noise source were calculated using SoundPLAN.

The project proposes to improve the existing fleet maintenance facility and construct an office building, three warehouse/shop buildings, and a four-story parking structure on a developed site. Noise sources associated with the existing fleet maintenance facility include activities associated with the existing vehicle maintenance building and with the vehicle washing & refueling station, and equipment such as standby generators, boilers, and cooling towers at the central equipment plant. The project would not substantially alter these noise sources. The project would result in new noise sources including rooftop heating, ventilation, and air conditioning (HVAC) units for the proposed office building, indoor activities associated with the warehouse/shop buildings, and noise associated with the visitor parking structure. The increase in vehicle traffic noise was accounted for as a part of the noise associated with the new parking structure, and the increase in maintenance noise is accounted for as part of the noise associated with the vehicle maintenance building. These noise sources are assessed below.

HVAC Units

There are existing HVAC units on the rooftop of the vehicle maintenance building, and rooftop HVAC units would be installed on the proposed office building. Conservatively, commercial office buildings would require an HVAC system capacity of 1 ton for every 340 square feet of air conditioned space. Thus, the 41,900-square-foot office building would require up to 123 tons of HVAC capacity, and the existing building requires 29 tons of HVAC capacity. Based on review of various manufacturer specifications, a representative sound power level of 79 dB(A) for each 10-ton unit was selected for analysis (Attachment 2). HVAC units were modeled at full capacity during the daytime hours and 50 percent capacity during the nighttime hours.

Central Equipment Plan

A central equipment plant is located at the southeastern corner of the project site. It consists of cooling towers, a boiler, and an emergency backup generator. Based on existing noise level measurements of a similar facility, it is estimated the central equipment plant generates a sound power level of 93.3 dB(A) with all equipment operating (RECON 2010) The central equipment plant was modeled at full capacity during the daytime and nighttime hours.

Fueling Station

An existing fueling station is located near the center of the project site. The project would construct a new shade canopy over the existing fuel pumps. Noise sources at the fueling station would include idling vehicles. In order to evaluate worst-case idling vehicle noise impacts, the analysis utilized reference noise level measurements taken at an Albertson's Shopping Center loading dock in San Diego, California in 2011. The unmitigated exterior noise levels for truck drive-by noise and truck engine noise were measured at 66.5 dB(A) L_{eq} at a distance of 25 feet from the loading dock. This is equivalent to a sound power level of 92.1 dB(A). As a worst-case analysis, truck idling noise was modeled as a continuous noise source at the fueling station during the daytime and nighttime hours.

Car Wash

The project would construct an industrial car wash near the existing fueling station. It would be a modular car wash similar to a Washtech LFO, which is a drive-through car wash for buses and trams. Typically, the noise source of greatest concern for a car wash is the blowers. Based on noise measurement information provided for a representative car wash, the blowers would be anticipated to generate a sound power level of 98.9 dB(A) (see Attachment 2). Noise levels due to car wash activity were modeled during the daytime hours only.

Parking Structure

A four-level parking structure would be constructed at the southeastern portion of the project site. Parking lot activities that generate noise include vehicles traveling to and from parking spaces, and brief noise instances associated with parking such as opening and closing car doors, engines starting, and alarm activation noises. The parking area was modeled based on a typical vehicle movement generating a sound power level of 62.7 dB(A) per parking movement in a one-hour period (Bayerisches Landesamt für Umwelt 2007). Each level of the parking garage was modeled as an area source with 100 percent activity, i.e., each parking space would generate one parking movement (arrival, travel through parking area, and departure) per hour. During the nighttime hours, the parking structure was modeled at 25 percent capacity.

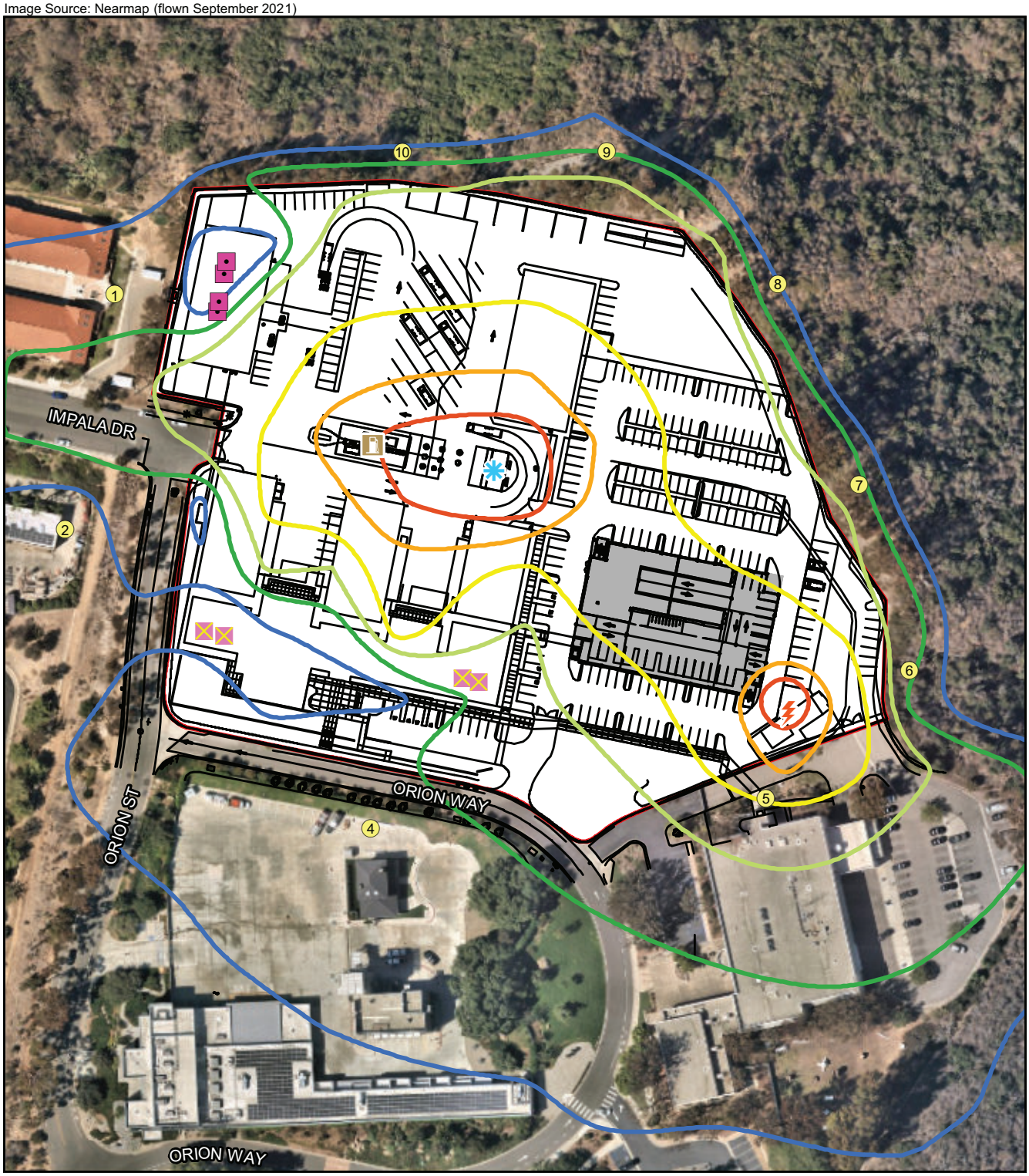
Warehouse/Shop Buildings

Noise sources associated with the warehouse/shop buildings are anticipated to include equipment such as compressors, pumps, and handheld power tools such as saws, drills, welders, etc. Due to attenuation provided by the building envelope, indoor activities do not typically result in noise levels in excess of applicable performance standards established in the General Plan. Activities associated with the warehouse/shop buildings would result in less than significant noise impacts at adjacent land uses.

On-Site Generated Noise Levels

Using the parameters discussed above, daytime and nighttime noise level contours were modeled using SoundPLAN. Noise levels were also modeled at 10 specific receivers located at the adjacent uses and the adjacent habitat. Daytime and nighttime noise level contours are shown in Figures 5 and 6, respectively. Table 1 summarizes the modeled noise levels at the specific receiver locations. SoundPLAN data is provided in Attachment 3.

Image Source: Nearmap (flown September 2021)



Daytime Noise

- 40 dB(A) L_{eq}
- 45 dB(A) L_{eq}
- 50 dB(A) L_{eq}
- 55 dB(A) L_{eq}
- 60 dB(A) L_{eq}
- 65 dB(A) L_{eq}

Noise Source

- Existing Central Energy Plant
- Existing Fueling Station
- Existing HVAC
- Proposed HVAC
- Proposed Car Wash
- Parking Structure

- Receivers
- Site Plan
- Project Boundary

0 Feet 150

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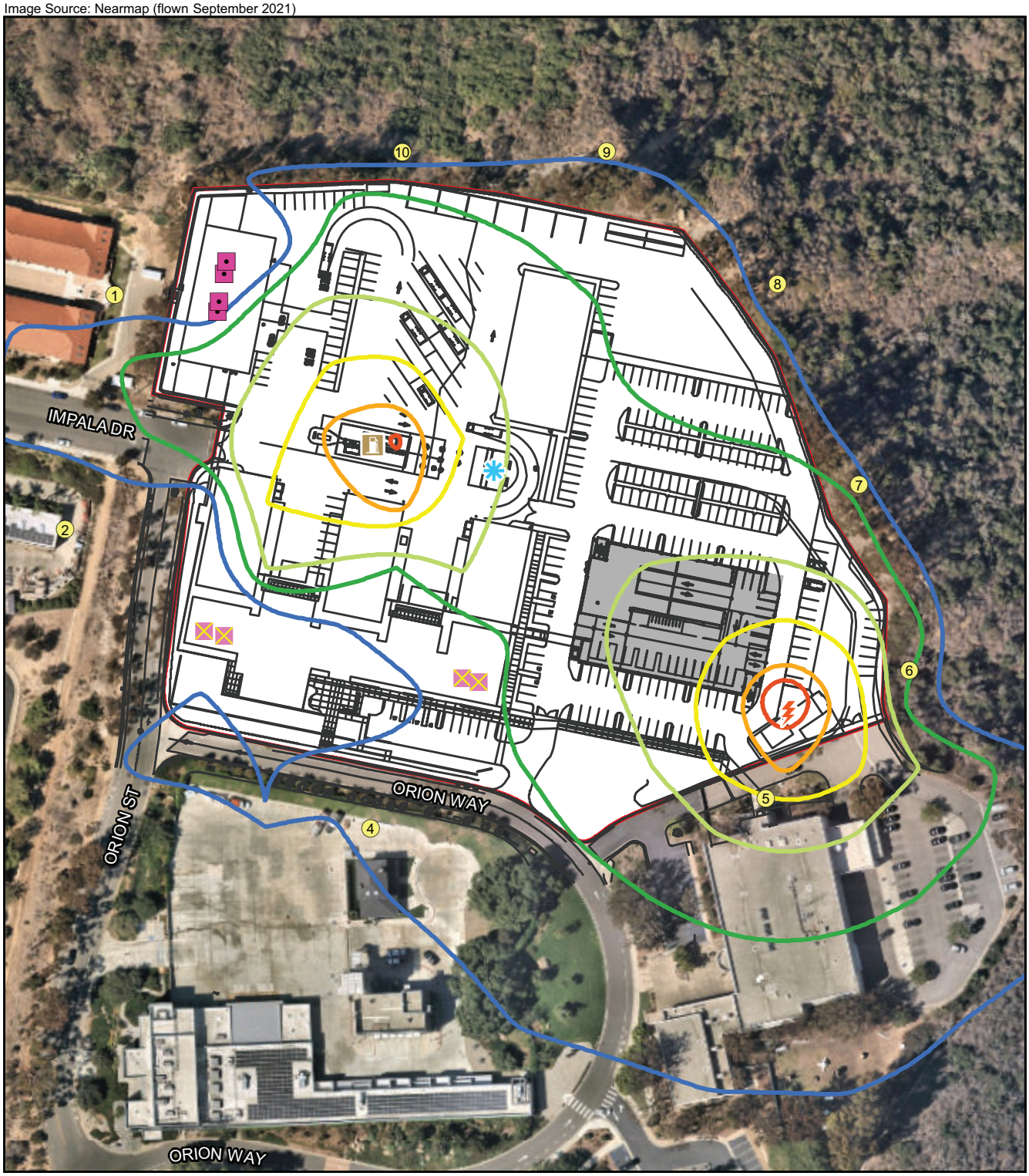
FIGURE 5
Daytime On-Site Generated Noise Contours

Image Source: Nearmap (flown September 2021)



Nighttime Noise

- 40 dB(A) L_{eq}
- 45 dB(A) L_{eq}
- 50 dB(A) L_{eq}
- 55 dB(A) L_{eq}
- 60 dB(A) L_{eq}
- 65 dB(A) L_{eq}

Noise Source

- Existing Central Energy Plant
- Existing Fueling Station
- Existing HVAC
- Proposed HVAC
- Proposed Car Wash
- Parking Structure

0 Feet 150

- Receivers
- Site Plan
- Project Boundary

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FIGURE 6
Nighttime On-Site Generated Noise Contours

Table 1 On-Site Generate Noise Levels [dB(A) L_{eq}]				
Receiver	Land Use	Daytime/Nighttime Noise Level Limit	Daytime Noise Level	Nighttime Noise Level
1	La Posada de Guadalupe de Carlsbad Shelter	55/45	42	38
2	JC Baldwin Construction Company	--	38	35
3	Beckman Coulter, Inc.	--	34	31
4	City of Carlsbad Safety Training Center	--	43	41
5	Carlsbad Police Department	--	56	56
6	Sensitive Habitat	60/60	41	40
7	Sensitive Habitat	60/60	49	46
8	Sensitive Habitat	60/60	48	41
9	Sensitive Habitat	60/60	50	43
10	Sensitive Habitat	60/60	36	29
dB(A) L_{eq} = A-weighted decibel equivalent noise level -- = Not Applicable. Not a sensitive land use.				

As shown in Table 1, noise levels at the nearest noise sensitive land use would be 42 dB(A) L_{eq} during the daytime hours and 38 dB(A) L_{eq} during the nighttime hours, and would not exceed the applicable daytime and nighttime noise level limits of 55 and 45 dB(A) L_{eq}, respectively. Additionally, daytime and nighttime noise levels at the adjacent sensitive habitat would not exceed 60 dB(A) L_{eq}. Noise levels at the adjacent non-sensitive land uses (Receivers 2 through 5) are provided for informational purposes only. On-site generated noise levels are not anticipated to result in noise levels that exceed applicable performance standards established in the General Plan or otherwise adversely impact the adjacent sensitive habitat. Noise impacts associated with project operation would be less than significant.

Conclusions

As discussed, construction noise levels would not exceed 75 dB(A) L_{eq} beyond the project boundary, and noise levels at the nearby uses would be less than 65 dB(A) L_{eq}. As project construction activities would be limited to within hours specified in Municipal Code Section 8.48.010, temporary noise level increases at the La Posada de Guadalupe de Carlsbad Shelter and other adjacent land uses would be less than significant and would not require mitigation.

There is potential for coastal California gnatcatcher and nesting bird species, including southern California rufous-crowned sparrow, to nest in coastal sage scrub in habitat to the north and east of the project site. Construction noise levels would exceed 60 dB(A) L_{eq} at the adjacent habitat. Raptors, including Cooper's hawk, have the potential to nest within the eucalyptus trees. Mitigation measures have been identified in the Biological Resource Report completed for the project that would reduce impacts on coastal California gnatcatcher, raptors (including Cooper's hawk), and nesting bird species (including southern California rufous crowned sparrow) to a level less than significant.

Once construction is complete, the project would include existing and proposed sources of operational noise including HVAC equipment, the existing central equipment plant, the existing fueling station, the car wash, and the proposed parking structure. Noise levels due to on-site noise sources were modeled using SoundPLAN. As calculated in this analysis, it is anticipated that on-site generated noise levels would not

exceed applicable performance standards established in the General Plan or adversely impact the adjacent sensitive habitat. Therefore, noise impacts associated with project operation would be less than significant.

If you have any questions, please contact me at jfleming@reconenvironmental.com, or at (619) 308-9333, extension 177.

Sincerely,

Jessica Fleming
Environmental Analyst

JLF:eab:sh

Attachments

References Cited

Bayerisches Landesamt für Umwelt
2007 (Parkplatzlarmstudie 6) Parking Area Noise, Recommendation for the Calculation of Sound Emissions of Parking Areas, Motorcar Centers and Bus Stations as well as Multi-Storey Car Parks and Underground Car Parks. 6. Revised Edition.

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ATTACHMENTS

ATTACHMENT 1

SoundPLAN Data (Construction)

7663 Carlsbad Maintenance and Operations Facility
SoundPLAN Data - Construction Noise

Source name	Reference	Level Leq1 dB(A)	Corrections Cwall dB(A)	CI dB(A)	CT dB(A)
Construction	Lw/unit	114	-	-	-

ATTACHMENT 2

HVAC Specifications

Fan Performance

Table 6. Standard motor & low static drive accessory sheave/fan speed (rpm)

Tons	Unit Model Number	Fan Sheave	6 Turns Open	5 Turns Open	4 Turns Open	3 Turns Open	2 Turns Open	1 Turn Open	Closed
5	WSC060ED	AK44x3/4"	N/A	720	791	861	931	1002	1072
6	WSC072ED	AK56x1"	N/A	558	612	665	718	772	825
7½	WSC090ED	AK57x1"	N/A	688	737	787	837	887	N/A
10	WSC120ED	AK105X1"	N/A	724	776	828	880	932	984

Note: Factory set at 3 turns open.

Table 7. Standard motor & high static drive accessory sheave/fan speed (rpm)

Tons	Unit Model Number	Fan Sheave	6 Turns Open	5 Turns Open	4 Turns Open	3 Turns Open	2 Turns Open	1 Turn Open	Closed
6	WSC072ED	AK56x1"	N/A	968	1018	1068	1118	1169	1219
7½	WSC090ED	AK57x1"	1053	1091	1129	1166	1204	1242	N/A
10	WSC120ED	AK105X1"	1110	1159	1209	1258	1308	1357	N/A

Note: Factory set at 3 turns open.

Table 8. Oversized motor & high static drive accessory sheave/fan speed (rpm)

Tons	Unit Model Number	Fan Sheave	6 Turns Open	5 Turns Open	4 Turns Open	3 Turns Open	2 Turns Open	1 Turn Open	Closed
7½	WSC090ED	AK85x1"	1186	1249	1311	1373	1436	N/A	N/A

Note: Factory set at 3 turns open.

Table 9. Outdoor sound power level—dB (ref. 10—2 W)

Tons	Unit Model Number	Octave Center Frequency								Overall dBA
		63	125	250	500	1000	2000	4000	8000	
5	T/YSC060ED	84	91	79	77	74	71	68	63	80
6	T/YSC072ED	83	90	86	82	79	75	70	63	85
7½	T/YSC090ED	83	90	86	83	80	75	71	64	85
8.5	T/YSC102ED	83	89	84	81	77	72	69	62	83
10	T/YSC120ED	83	86	80	77	73	69	66	60	79

Note: Tests follow ARI270-95.

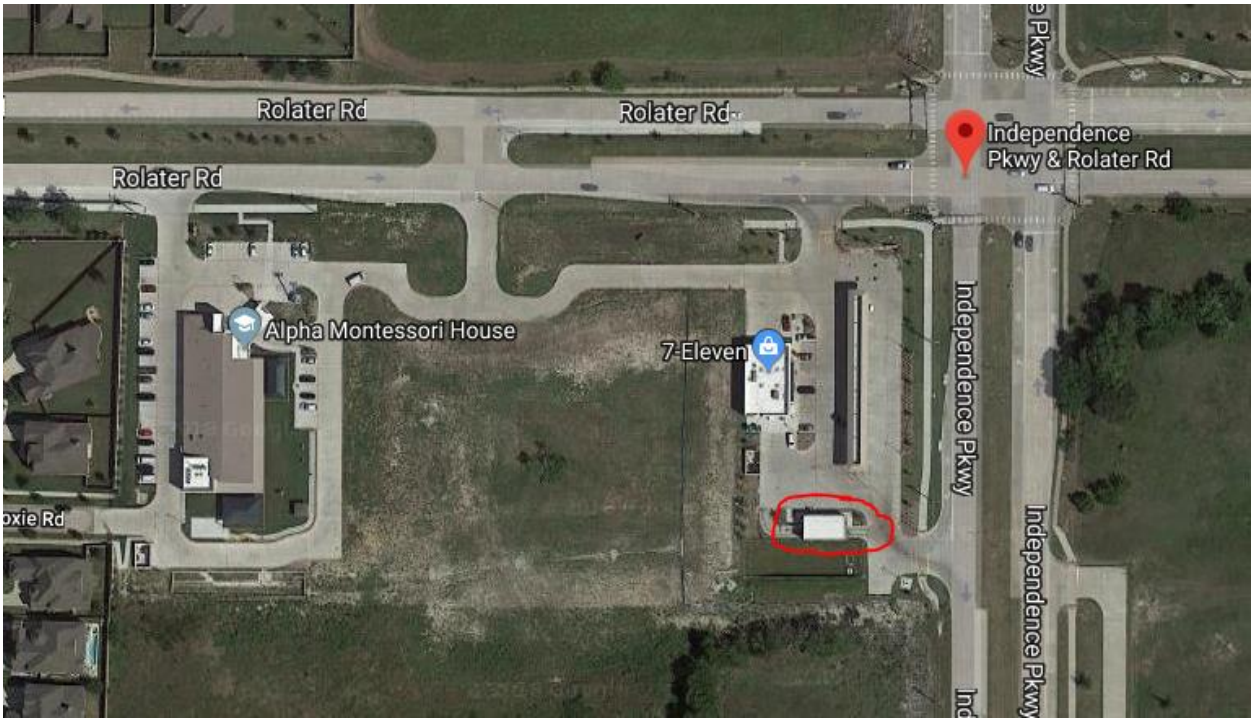
Table 10. Outdoor sound power level—dB (ref. 10—12 W)

Tons	Unit Model Number	Octave Center Frequency								Overall dBA
		63	125	250	500	1000	2000	4000	8000	
5	WSC060ED	84	91	79	77	74	71	68	63	80
6	WSC072ED	83	90	86	82	79	75	70	63	85
7½	WSC090ED	83	90	86	83	80	75	71	64	85
10	WSC120ED	83	86	80	77	73	69	66	60	79

Note: Tests follow ARI270-95.

To whom it may concern,

This letter certifies that the decibel levels below were recorded at 7-Eleven, located at 7275 Independence Pkwy, Frisco TX on the date of July 18, 2018 at 12:15pm with an Extech, model 407730 sound level meter.



Installed at this site is the same dryer that will be installed at the Chula Vista car wash site. Dryer system is a Mark VII AquaDri FS-40, 40 HP Freestanding dryer which consists of (4) 10 Horsepower Baldor Reliance SuperE Severe Duty XEX motors. All distances were measured from entrance side of car wash bay.

25 ft- 71 dBA
50 ft- 63 dBA
75 ft- 58 dBA
100 ft- 58 dBA
150 ft- 54 dBA
200 ft- 52 dBA
250 ft- 51 dBA
280 ft- 51 dBA

Thank you.

Cory Cox
Key Accounts Manager
Mark VII Equipment

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ATTACHMENT 3

SoundPLAN Data (On-Site)

7663 Carlsbad Maintenance and Operations Facility
SoundPLAN Data - On-Site Generated Noise

Source name	Reference	Level		Corrections		
		Daytime dB(A)	Nighttime dB(A)	Cwall dB(A)	CI dB(A)	CT dB(A)
Parking Garage Level 1	Lw/unit	76.3	70.3	-	-	-
Parking Garage Level 2	Lw/unit	81.5	75.5	-	-	-
Parking Garage Level 3	Lw/unit	81.5	75.5	-	-	-
Parking Garage Level 4	Lw/unit	80.0	74.0	-	-	-
Central Energy	Lw/unit	93.3	93.3	-	-	-
Fueling Station	Lw/unit	92.1	92.1	-	-	-
Carwash	Lw/unit	98.9	-	-	-	-
Proposed HVAC 4	Lw/unit	83.8	80.8	-	-	-
Proposed HVAC 3	Lw/unit	83.8	80.8	-	-	-
Proposed HVAC 2	Lw/unit	83.8	80.8	-	-	-
Proposed HVAC 1	Lw/unit	83.8	80.8	-	-	-
Existing HVAC 4	Lw/unit	79.0	76.0	-	-	-
Existing HVAC 3	Lw/unit	79.0	76.0	-	-	-
Existing HVAC 2	Lw/unit	79.0	76.0	-	-	-
Existing HVAC 1	Lw/unit	79.0	76.0	-	-	-

7663 Carlsbad Maintenance and Operations Facility
SoundPLAN Data - On-Site Generated Noise

No.	Coordinates X	Coordinates Y	Floor	Height	Limit Daytime	Limit Nighttime	Level w/o NP Daytime	Level w/o NP Nighttime	Level w NP Daytime	Level w NP Nighttime	Difference Daytime	Difference Nighttime	Conflict Daytime	Conflict Nighttime
	in meter			m	dB(A)		dB(A)		dB(A)		dB		dB	
1	475052.24	3666803.82	1.Fl	111.99	55	45	41.8	38.4	0	0	-41.8	-38.4	-	-
2	475037.37	3666731.26	1.Fl	108.70	-	-	38.1	34.5	0	0	-38.1	-34.5	-	-
3	475016.55	3666671.78	1.Fl	100.86	-	-	34.3	31.3	0	0	-34.3	-31.3	-	-
4	475132.53	3666639.66	1.Fl	110.56	-	-	42.6	40.5	0	0	-42.6	-40.5	-	-
5	475254.46	3666649.77	1.Fl	113.87	-	-	56.1	55.6	0	0	-56.1	-55.6	-	-
6	475298.47	3666689.62	1.Fl	107.20	60	60	40.9	40.0	0	0	-40.9	-40.0	-	-
7	475282.41	3666746.72	1.Fl	115.50	60	60	49.2	45.6	0	0	-49.2	-45.6	-	-
8	475256.84	3666808.57	1.Fl	114.60	60	60	48.3	41.1	0	0	-48.3	-41.1	-	-
9	475203.90	3666849.02	1.Fl	117.93	60	60	49.6	42.5	0	0	-49.6	-42.5	-	-
10	475140.86	3666848.42	1.Fl	106.83	60	60	35.6	29.2	0	0	-35.6	-29.2	-	-

Receivers

7663 Carlsbad Maintenance and Operations Facility
SoundPLAN Data - On-Site Generated Noise

Source name			Level w/o NP Daytime		Nighttime
			dB(A)		
1	1.Fl	41.8	38.4	0.0	0.0
Carwash			33.4		-
Central Energy			18.8		18.8
Existing HVAC 1			32.8		29.8
Existing HVAC 2			33.1		30.1
Existing HVAC 3			33.4		30.4
Existing HVAC 4			33.4		30.4
Fueling Station			29.2		29.2
Parking Garage Level 1			3.8		-2.2
Parking Garage Level 2			12.3		6.3
Parking Garage Level 3			15.8		9.8
Parking Garage Level 4			14.9		8.9
Proposed HVAC 1			26.5		23.5
Proposed HVAC 2			26.7		23.7
Proposed HVAC 3			32.8		29.8
Proposed HVAC 4			29.8		26.8
2	1.Fl	38.1	34.5	0.0	0.0
Carwash			31.0		-
Central Energy			19.1		19.1
Existing HVAC 1			21.5		18.5
Existing HVAC 2			21.8		18.8
Existing HVAC 3			22.3		19.3
Existing HVAC 4			23.3		20.3
Fueling Station			26.8		26.8
Parking Garage Level 1			3.5		-2.5
Parking Garage Level 2			15.7		9.7
Parking Garage Level 3			16.8		10.8
Parking Garage Level 4			16.6		10.6
Proposed HVAC 1			18.2		15.2
Proposed HVAC 2			18.7		15.7
Proposed HVAC 3			31.8		28.8
Proposed HVAC 4			33.2		30.2
3	1.Fl	34.3	31.3	0.0	0.0
Carwash			23.0		-
Central Energy			20.4		20.4
Existing HVAC 1			14.0		11.0
Existing HVAC 2			14.3		11.3
Existing HVAC 3			16.0		13.0
Existing HVAC 4			16.6		13.6
Fueling Station			20.7		20.7
Parking Garage Level 1			-1.6		-7.6
Parking Garage Level 2			5.2		-0.8
Parking Garage Level 3			6.6		0.6
Parking Garage Level 4			6.1		0.1
Proposed HVAC 1			13.5		10.5
Proposed HVAC 2			13.6		10.6
Proposed HVAC 3			30.4		27.4
Proposed HVAC 4			29.9		26.9
4	1.Fl	42.6	40.5	0.0	0.0
Carwash			28.9		-
Central Energy			37.8		37.8
Existing HVAC 1			9.2		6.2
Existing HVAC 2			9.4		6.4
Existing HVAC 3			10.0		7.0
Existing HVAC 4			10.1		7.1
Fueling Station			22.1		22.1
Parking Garage Level 1			21.8		15.8
Parking Garage Level 2			28.0		22.0
Parking Garage Level 3			28.6		22.6
Parking Garage Level 4			27.7		21.7
Proposed HVAC 1			35.8		32.8
Proposed HVAC 2			36.0		33.0
Proposed HVAC 3			29.0		26.0
Proposed HVAC 4			27.5		24.5
5	1.Fl	56.1	55.6	0.0	0.0
Carwash			44.1		-
Central Energy			55.5		55.5
Existing HVAC 1			18.7		15.7
Existing HVAC 2			18.7		15.7
Existing HVAC 3			18.9		15.9
Existing HVAC 4			18.9		15.9
Fueling Station			29.3		29.3
Parking Garage Level 1			29.4		23.4
Parking Garage Level 2			36.5		30.5
Parking Garage Level 3			37.2		31.2
Parking Garage Level 4			36.0		30.0
Proposed HVAC 1			33.6		30.6
Proposed HVAC 2			32.0		29.0
Proposed HVAC 3			25.8		22.8
Proposed HVAC 4			25.3		22.3

Contributions

6	1.Fl	40.9	40.0	0.0	0.0
Carwash			30.5		-
Central Energy			39.7		39.7
Existing HVAC 1			6.8		3.8
Existing HVAC 2			6.8		3.8
Existing HVAC 3			6.8		3.8
Existing HVAC 4			6.8		3.8
Fueling Station			21.5		21.5
Parking Garage Level 1			14.9		8.9
Parking Garage Level 2			25.3		19.3
Parking Garage Level 3			26.7		20.7
Parking Garage Level 4			26.6		20.6
Proposed HVAC 1			19.7		16.7
Proposed HVAC 2			19.3		16.3
Proposed HVAC 3			10.5		7.5
Proposed HVAC 4			10.0		7.0
7	1.Fl	49.2	45.6	0.0	0.0
Carwash			45.8		-
Central Energy			44.4		44.4
Existing HVAC 1			20.5		17.5
Existing HVAC 2			20.5		17.5
Existing HVAC 3			20.6		17.6
Existing HVAC 4			20.6		17.6
Fueling Station			36.2		36.2
Parking Garage Level 1			28.2		22.2
Parking Garage Level 2			35.1		29.1
Parking Garage Level 3			35.9		29.9
Parking Garage Level 4			34.9		28.9
Proposed HVAC 1			30.1		27.1
Proposed HVAC 2			29.8		26.8
Proposed HVAC 3			24.7		21.7
Proposed HVAC 4			24.4		21.4
8	1.Fl	48.3	41.1	0.0	0.0
Carwash			47.2		-
Central Energy			38.4		38.4
Existing HVAC 1			21.2		18.2
Existing HVAC 2			21.2		18.2
Existing HVAC 3			21.1		18.1
Existing HVAC 4			21.1		18.1
Fueling Station			36.2		36.2
Parking Garage Level 1			23.0		17.0
Parking Garage Level 2			28.8		22.8
Parking Garage Level 3			29.4		23.4
Parking Garage Level 4			28.7		22.7
Proposed HVAC 1			27.3		24.3
Proposed HVAC 2			27.1		24.1
Proposed HVAC 3			24.6		21.6
Proposed HVAC 4			23.7		20.7
9	1.Fl	49.6	42.5	0.0	0.0
Carwash			48.5		-
Central Energy			35.6		35.6
Existing HVAC 1			25.4		22.4
Existing HVAC 2			25.2		22.2
Existing HVAC 3			24.9		21.9
Existing HVAC 4			24.8		21.8
Fueling Station			40.8		40.8
Parking Garage Level 1			20.7		14.7
Parking Garage Level 2			26.6		20.6
Parking Garage Level 3			27.0		21.0
Parking Garage Level 4			25.9		19.9
Proposed HVAC 1			27.8		24.8
Proposed HVAC 2			27.8		24.8
Proposed HVAC 3			26.3		23.3
Proposed HVAC 4			25.0		22.0
10	1.Fl	35.6	29.2	0.0	0.0
Carwash			34.1		-
Central Energy			21.6		21.6
Existing HVAC 1			19.4		16.4
Existing HVAC 2			18.0		15.0
Existing HVAC 3			16.2		13.2
Existing HVAC 4			15.7		12.7
Fueling Station			27.1		27.1
Parking Garage Level 1			6.2		0.2
Parking Garage Level 2			12.2		6.2
Parking Garage Level 3			12.6		6.6
Parking Garage Level 4			11.5		5.5
Proposed HVAC 1			13.2		10.2
Proposed HVAC 2			13.3		10.3
Proposed HVAC 3			14.0		11.0
Proposed HVAC 4			10.3		7.3