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MEMORANDUM

DATE: August 3, 2023

TO: Aimee Halligan, CEQA & Habitat Program Manager
Orange County Waste & Recycling

FROM: Jason Lui, Associate/Senior Noise Specialist and Corey Knips, Noise Analyst, LSA

SUBJECT: Noise and Vibration Impact Analysis for the Capistrano Greenery at Prima Deshecha Landfill Project

This memorandum evaluates potential noise and vibration impacts associated with the proposed Capistrano Greenery Project Update (project) at the Prima Deshecha Landfill in San Juan Capistrano, Orange County, California. This memorandum is intended to satisfy the County of Orange (County) requirement for a project-specific noise and vibration impact analysis by examining the impacts of the proposed project on nearby sensitive uses and identifying any necessary noise and vibration reduction measures to reduce project noise and vibration impacts.

PROJECT DESCRIPTION

OC Waste & Recycling (OCWR) proposes to implement a green waste composting operation at the 1,530-acre Prima Deshecha Landfill (landfill) property. Figure 1 shows the project location; all figures are provided in Attachment B. OCWR is proposing various operational modifications to the existing facility, including the following key components: (1) acceptance of new types of feedstock, including food waste; (2) increase in the amount of tonnage received on a daily basis from 204 tons per day (tpd) to 536 tpd; (3) use of Covered Aerated Static Pile (CASP) technology that would increase the volume of compost the facility can process, reduce water use, and increase environmental controls for the process; (4) addition of solar panels to power the blowers for the CASP system; (5) chipping and grinding activities; (6) community compost give-away events anticipated at a maximum monthly cadence; and (7) modifications to surface grading to improve stormwater management. Figure 2 shows the site plan.

The Capistrano Greenery Composting Operation (Greenery) was permitted in 2020 to receive a maximum of 204 tpd of processed green material (PGM), processed agricultural material, and manure. The Greenery is critical in meeting State mandates for the recycling of organic material. As a newly operating facility, the Greenery has not yet reached its maximum intake capacity, receiving approximately 170 tons per week of PGM as well as 150 tons of manure once per week and 10 tons of manure twice per week. Although the Greenery is not processing waste at the permitted maximum, there is a need to continue meeting the State's recycling mandates. Per Assembly Bill (AB) 1594, as of January 1, 2020, PGM is no longer considered as an exempt waste, but rather it will be counted as disposal and will become part of the landfill's daily disposal tonnage. As part of the

proposed project, OCWR is proposing to use improved CASP technology for composting that allows for greater throughput of material and improved environmental controls. This in turn allows the facility to accept more incoming organic materials for processing, thereby better assisting local municipalities by offering an expanded option for meeting State organic waste recycling mandates. Facility acreage may increase by up to 5 acres. The proposed project would have the same hours of operation and will involve an increase in permitted daily tonnage intake to a maximum of 464 TPD of compostable organic waste materials. After the composting process is complete, the 536 tpd of compost would be delivered to markets inside and outside of Orange County. The designated truck route to/from Capistrano Greenery and regional locations is Interstate 5 (I-5), Ortega Highway (State Route 74 [SR-74]), and Avenida La Pata.

The existing compost operation includes the use of the following equipment: one windrow turner, two front end loaders, one mobile screen, one water truck, and one dump truck. The proposed project would require the addition of new equipment, including the use of one 68 horsepower (HP) mechanical cover winder, one 950 HP chipper/grinder, and two 62 HP conveyors for the CASP operation. The proposed project would also include solar panels to power the blowers for the CASP system. In addition, the proposed project would include a 200- to 400-amp diesel emergency backup generator.

The intake of 536 tpd of compostable organic waste materials would require up to 25 trucks (with a 22-ton capacity), generating 50 daily trips. The 536 tpd of compost delivery would also require up to 25 trucks (with a 22-ton capacity), generating 50 daily trips. The project would require 50 total trucks, generating 100 daily trips. Based on the current hours of operation (10 hours between 7:00 a.m. and 5:00 p.m.), these trips would equate to approximately 10 trips per hour (LSA 2023b).

Construction of the proposed project is tentatively expected to begin in summer 2025 and occur for approximately 8 months. It is assumed that construction of the proposed project would require the use of one excavator, one front-end loader, one dump truck, one backhoe, and one D5 bulldozer, with two concrete trucks delivering concrete and minor asphalt delivery. At the height of construction, the project would likely require 20 construction workers, with an average of 6 to 8 construction workers for the majority of the construction duration. The project site would be balanced, with no cut and fill.

CHARACTERISTICS OF SOUND

Noise is usually defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, and sleep.

To the human ear, sound has two significant characteristics: pitch and loudness. Pitch is generally an annoyance, while loudness can affect the ability to hear. Pitch is the number of complete vibrations (or cycles per second) of a wave, resulting in the tone's range from high to low. Loudness is the strength of a sound and describes a noisy or quiet environment; it is measured by the amplitude of the sound wave. Loudness is determined by the intensity of the sound waves combined with the reception characteristics of the human ear. Sound intensity refers to how hard the sound wave strikes an object, which in turn produces the sound's effect. This characteristic of sound can be

precisely measured with instruments. The analysis of a project defines the noise environment of the project area in terms of sound intensity and its effect on adjacent sensitive land uses.

Measurement of Sound

Sound intensity is measured through the A-weighted scale to correct for the relative frequency response of the human ear. That is, an A-weighted noise level de-emphasizes low and very high frequencies of sound similar to the human ear's de-emphasis of these frequencies. Decibels (dB), unlike the linear scale (e.g., inches or pounds), is a scale based on powers of 10.

For example, 10 dB is 10 times more intense than 0 dB, 20 dB is 100 times more intense than 0 dB, and 30 dB is 1,000 times more intense than 0 dB. Thirty decibels (30 dB) represents 1,000 times as much acoustic energy as 0 dB. The decibel scale increases as the square of the change, representing the sound pressure energy. A sound as soft as human breathing is about 10 times greater than 0 dB. The decibel system of measuring sound gives a rough connection between the physical intensity of sound and its perceived loudness to the human ear. A 10 dB increase in sound level is perceived by the human ear as only a doubling of the loudness of the sound. Ambient sounds generally range from 30 A-weighted decibels (dBA) (very quiet) to 100 dBA (very loud).

Sound levels are generated from a source, and their decibel level decreases as the distance from that source increases. Sound dissipates exponentially with distance from the noise source. For a single point source, sound levels decrease approximately 6 dB for each doubling of distance from the source. This drop-off rate is appropriate for noise generated by stationary equipment. If noise is produced by a line source, such as highway traffic or railroad operations, the sound decreases 3 dB for each doubling of distance in a hard site environment. Line-source noise in a relatively flat environment with absorptive vegetation decreases 4.5 dB for each doubling of distance.

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. The equivalent continuous sound level (L_{eq}) is the total sound energy of time-weighted average noise over a sample period. However, the predominant rating scales for human communities in California are L_{eq} and the Community Noise Equivalent Level (CNEL) or the day-night average noise level (L_{dn}) based on dBA. CNEL is the time-varying noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly L_{eq} for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours) and a 10 dBA weighting factor applied to noise occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours). L_{dn} is similar to the CNEL scale but without the adjustment for events occurring during the relaxation hours. CNEL and L_{dn} are within 1 dBA of each other and are normally interchangeable. The noise adjustments are added to the noise events occurring during the more sensitive hours.

Other noise rating scales of importance, when assessing the annoyance factor, include the maximum instantaneous noise level (L_{max}), which is the highest exponential time-averaged sound level that occurs during a stated time period. The noise environments discussed in this analysis are specified in terms of L_{max} for short-term noise impacts. L_{max} reflects peak operating conditions and addresses the annoying aspects of intermittent noise. Another noise scale often used together with L_{max} in noise ordinances for enforcement purposes is noise standards in terms of percentile noise levels. For example, the L_{10} noise level represents the noise level exceeded 10 percent of the time

during a stated period. The L_{50} noise level represents the median noise level. Half of the time, the noise level exceeds this level, and half of the time, it is less than this level. The L_{90} noise level represents the noise level exceeded 90 percent of the time and is considered the background noise level during a monitoring period. For a relatively constant noise source, L_{eq} and L_{50} are approximately the same.

Noise impacts can be described in three categories. The first is audible impacts, which refer to increases in noise levels noticeable to humans. Audible increases in noise levels generally refer to a change of 3 dB or greater since this level has been found to be barely perceptible in exterior environments. The second category, potentially audible, refers to a change in the noise level between 1 and 3 dB. This range of noise levels has been found to be noticeable only in laboratory environments. The last category is changes in noise level of less than 1 dB, which are inaudible to the human ear. Only audible changes in existing ambient or background noise levels are considered potentially significant.

Physiological Effects of Noise

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects the entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions and thereby affecting blood pressure and functions of the heart and the nervous system. In comparison, extended periods of noise exposure above 90 dBA would result in permanent cell damage. When the noise level reaches 120 dBA, a tickling sensation occurs in the human ear, even with short-term exposure. This level of noise is called the threshold of feeling. As the sound reaches 140 dBA, the tickling sensation is replaced by the feeling of pain in the ear. This is called the threshold of pain. A sound level of 160 to 165 dBA will potentially result in dizziness or loss of equilibrium. The ambient or background noise problem is widespread and generally more concentrated in urban areas than in outlying, less-developed areas.

Table A lists definitions of acoustical terms, and Table B shows common sound levels and their sources.

FUNDAMENTALS OF VIBRATION

Vibration refers to ground-borne noise and perceptible motion. Ground-borne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors, where the motion may be discernible, but without the effects associated with the shaking of a building there is less adverse reaction. Vibration energy propagates from a source through intervening soil and rock layers to the foundations of nearby buildings. The vibration then propagates from the foundation throughout the remainder of the structure. Building vibration may be perceived by occupants as the motion of building surfaces, the rattling of items sitting on shelves or hanging on walls, or a low-frequency rumbling noise. The rumbling noise is caused by the vibration of walls, floors, and ceilings that radiate sound waves. Although the perceptibility threshold is approximately 65 vibration velocity decibels (VdB), human response to vibration is not usually substantial unless the vibration exceeds 70 VdB. A vibration level that causes annoyance is well below the damage risk threshold for typical buildings.

Table A: Definitions of Acoustical Terms

Term	Definitions
Decibel, dB	A unit of sound level that denotes the ratio between two quantities that are proportional to power; the number of decibels is 10 times the logarithm (to the base 10) of this ratio.
Frequency, Hz	Of a function periodic in time, the number of times that the quantity repeats itself in 1 second (i.e., the number of cycles per second).
A-Weighted Sound Level, dBA	The sound level obtained by use of A-weighting. The A-weighting filter de-emphasizes the very low and very high-frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. (All sound levels in this report are A-weighted unless reported otherwise.)
L_{01}, L_{10}, L_{50}, L_{90}	The fast A-weighted noise levels that are equaled or exceeded by a fluctuating sound level 1%, 10%, 50%, and 90% of a stated time period, respectively.
Equivalent Continuous Noise Level, L_{eq}	The level of a steady sound that, in a stated time period and at a stated location, has the same A-weighted sound energy as the time-varying sound.
Community Noise Equivalent Level, CNEL	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 5 dBA to sound levels occurring in the evening from 7:00 p.m. to 10:00 p.m. and after the addition of 10 dBA to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.
Day/Night Noise Level, L_{dn}	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 10 dBA to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.
L_{max}, L_{min}	The maximum and minimum A-weighted sound levels measured on a sound level meter, during a designated time interval, using fast time averaging.
Ambient Noise Level	The all-encompassing noise associated with a given environment at a specified time. It is usually a composite of sound from many sources from many directions, near and far; no particular sound is dominant.
Intrusive	The noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content, as well as the prevailing ambient noise level.

Source: *Handbook of Acoustical Measurements and Noise Control* (Harris 1991).

Table B: Common Sound Levels and Their Noise Sources

Noise Source	A-Weighted Sound Level in Decibels	Noise Environments	Subjective Evaluations
Near Jet Engine	140	Deafening	128 times as loud
Civil Defense Siren	130	Threshold of Pain	64 times as loud
Hard Rock Band	120	Threshold of Feeling	32 times as loud
Accelerating Motorcycle at a Few Feet Away	110	Very Loud	16 times as loud
Pile Driver; Noisy Urban Street/Heavy City Traffic	100	Very Loud	8 times as loud
Ambulance Siren; Food Blender	95	Very Loud	—
Garbage Disposal	90	Very Loud	4 times as loud
Freight Cars; Living Room Music	85	Loud	—
Pneumatic Drill; Vacuum Cleaner	80	Loud	2 times as loud
Busy Restaurant	75	Moderately Loud	—
Near Freeway Auto Traffic	70	Moderately Loud	Reference level
Average Office	60	Quiet	One-half as loud
Suburban Street	55	Quiet	—
Light Traffic; Soft Radio Music in Apartment	50	Quiet	One-quarter as loud
Large Transformer	45	Quiet	—
Average Residence without Stereo Playing	40	Faint	One-eighth as loud
Soft Whisper	30	Faint	—
Rustling Leaves	20	Very Faint	—
Human Breathing	10	Very Faint	Threshold of Hearing
—	0	Very Faint	—

Source: Compiled by LSA (2016).

Typical sources of ground-borne vibration are construction activities (e.g., blasting, pile driving, and operating heavy-duty earthmoving equipment), steel-wheeled trains, and occasional traffic on rough roads. Problems with both ground-borne vibration and noise from these sources are usually localized to areas within approximately 100 feet (ft) from the vibration source, although there are examples of ground-borne vibration causing interference out to distances greater than 200 ft (*Transit Noise and Vibration Impact Assessment Manual* [FTA 2018]). When roadways are smooth, vibration from traffic, even heavy trucks, is rarely perceptible. It is assumed for most projects that the roadway surface will be smooth enough that ground-borne vibration from street traffic will not exceed the impact criteria; however, both construction of the project and freight train operations could result in ground-borne vibration that may be perceptible and annoying.

Ground-borne noise is not likely to be a problem because noise arriving via the normal airborne path will usually be greater than ground-borne noise. Ground-borne vibration has the potential to disturb people and damage buildings. Although it is very rare for train-induced ground-borne vibration to cause even cosmetic building damage, it is not uncommon for construction processes (e.g., blasting and pile driving) to cause vibration of sufficient amplitudes to damage nearby buildings (FTA 2018). Ground-borne vibration is usually measured in terms of vibration velocity, either the root-mean-square (RMS) velocity or peak particle velocity (PPV). The RMS velocity is best for characterizing

human response to building vibration, and PPV is used to characterize potential for damage. Decibel notation acts to compress the range of numbers required to describe vibration. The vibration velocity level in decibels is defined as the following:

$$L_v = 20 \log_{10} [V/V_{ref}]$$

where "L_v" is the VdB, "V" is the RMS velocity amplitude, and "V_{ref}" is the reference velocity amplitude, or 1 x 10^{-6} inches/second (in/sec) used in the United States.

REGULATORY SETTING

Federal Guidelines

Federal Transit Administration

Vibration standards included in the Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018) were used in this analysis because the City of San Juan Capistrano does not have vibration standards. Table C provides the criteria for assessing the potential for interference or annoyance from vibration levels in a building, while Table D lists the potential vibration building damage criteria associated with construction activities.

Table C: Interpretation of Vibration Criteria for Detailed Analysis

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

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

Table D: Construction Vibration Damage Criteria

Building Category	PPV (in/sec)	Approximate L_V (VdB)[1]
Reinforced concrete, steel, or timber (no plaster)	0.50	102
Engineered concrete and masonry (no plaster)	0.30	98
Non-engineered timber and masonry buildings	0.20	94
Buildings extremely susceptible to vibration damage	0.12	90

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

County Regulations

General Plan Noise Element

The County's General Plan Noise Element has established allowable noise exposure levels for various land uses in the compatibility matrix for land use and community noise equivalent levels (CNEL) shown in Table E and lists policies required to meet the County's noise-related objectives. The County's General Plan Noise Element policies that are applicable to the proposed project include the following:

Table E: Compatibility Matrix for Land Use and Community Noise Equivalent Levels

TYPE OF USE	65+ decibels CNEL	60 to 65 decibels CNEL
Residential	3a, b, e	2a, e
Commercial	2c	2c
Employment	2c	2c
Open Space		
Local	2c	2c
Community	2c	2c
Regional	2c	2c
Educational Facilities		
Schools (K through 12)	2c, d, e	2c, d, e
Preschool, college, other	2c, d, e	2c, d, e
Places of Worship	2c, d, e	2c, d, e
Hospitals		
General	2a, c, d, e	2a, c, d, e
Convalescent	2a, c, d, e	2a, c, d, e
Group Quarters	1a, b, c, e	2a, c, e
Hotel / Motels	2a, c	2a, c
Accessory Uses		
Executive Apartments	1a, b, e	2a, e
Caretakers	1a, b, c, e	2a, c, e

ACTION REQUIRED TO ENSURE COMPATIBILITY BETWEEN LAND USE AND NOISE FROM EXTERNAL SOURCES

1 = Allowed if interior and exterior community noise levels can be mitigated.
2 = Allowed if interior levels can be mitigated.
3 = New residential uses are prohibited in areas within the 65-decibel CNEL contour from any airport of air station; allowed in other areas if interior and exterior community noise levels can be mitigated. The prohibition against new residential development excludes limited "infill" development within an established neighborhood.

STANDARDS REQUIRED FOR COMPATIBILITY OF LAND USE AND NOISE

a = Interior Standard: CNEL of less than 45 decibels (habitable rooms only).
b = Exterior Standard: CNEL of less than 65 decibels in outdoor living areas.
c = Interior Standard: Leq (h)=45 to 65 decibels interior noise level, depending on interior use.
d = Exterior Standard: Leq (h) of less than 65 decibels in outdoor living areas.
e = Interior Standard: As approved by the Board of Supervisors for sound events of short duration such as aircraft flyovers or individual passing railroad trains.

KEY DEFINITIONS

Habitable Room – Any room meeting the requirements of the Uniform Building Code or other applicable regulations which is intended to be used for sleeping, living, cooking or dining purposes, excluding such enclosed spaces as closets, pantries, bath or toilet rooms, service rooms, connecting corridors, laundries, unfinished attics, foyers, storage spaces, cellars, utility rooms and similar spaces.

Interior – Spaces that are covered and largely enclosed by walls.

Leq (h) – The A-weighted equivalent sound level averaged over a period of "h" hours. An example would be Leq (12) where the equivalent sound level is the average over a specified 12-hour period (such as 7:00 a.m. to 7:00 p.m.). Typically, time period "h" is defined to match the hours of operation of a given type of use.

Outdoor Living Area – Outdoor living area is a term used by the County of Orange to define spaces that are associated with residential land uses typically used for passive private recreational activities or other noise-sensitive uses. Such spaces include patio areas, barbecue areas, jacuzzi areas, etc. associated with residential uses; outdoor patient recovery or resting areas associated with hospitals, convalescent hospitals, or rest homes; outdoor areas associated with places of worship which have a significant role in services or other noise-sensitive activities; and outdoor school facilities routinely used for educational purposes which may be adversely impacted by noise. Outdoor areas usually not included in this definition are: front yard areas, driveways, greenbelts, maintenance areas, and storage areas associated with residential land uses; exterior areas at hospitals that are not used for patient activities; outdoor areas associated with places of worship and principally used for short-term social gatherings; and outdoor areas associated with school facilities that are not typically associated with educational uses prone to adverse noise impacts (for example, school play yard areas).

Source: County of Orange General Plan Noise Element, Tables VIII-2 and VIII-3 (County of Orange 2012).

- **Policy 4.1:** To enforce the County's Noise Ordinance to prohibit or mitigate harmful and unnecessary noise within the County.

- **Policy 4.3:** To develop and enforce standards in addition to those presently included in the Noise Ordinance to regulate noise from construction and maintenance activities and commercial public and industrial land uses.

- **Policy 4.5:** To require that noise from motors, appliances, air conditioners, and other consumer products does not disturb the occupants of surrounding properties.

Code of Ordinances

Sections 4-6-5 and 4-6-6 of the County's Code of Ordinances (County of Orange 2022) are designed to control unnecessary, excessive, and annoying sound from sources on private property by specifying noise levels that cannot be exceeded. Table F defines the exterior and interior noise level limits for noise from one property to adjacent residential land uses.

Table F: County of Orange—Non-Transportation Noise Standards

Land Use	Location	Time Period	L_{50} (30 minutes)[1]	L_{25} (15 minutes)[2]	L_8 (5 minutes)[3]	L_2 (1 minute)[4]	L_{max} (Any time)[5]
Residential	Exterior	7:00 a.m. to 7:00 p.m.	55	60	65	70	75
		10:00 p.m. to 7:00 a.m.	50	55	60	65	70
	Interior	7:00 a.m. to 7:00 p.m.	—	—	55	60	65
		10:00 p.m. to 7:00 a.m.	—	—	45	50	55

Source: County of Orange General Plan—Noise Ordinance (County of Orange 2020).
Note: Each of the noise levels set forth in this table shall be reduced by 5 dBA for impacts of simple tone noises or noises consisting of speech or music.
[1] The noise standard for a cumulative period of more than 30 minutes in any hour.
[2] The noise standard plus 5 dBA for a cumulative period of more than 15 minutes in any hour.
[3] The noise standard plus 10 dBA for a cumulative period of more than 5 minutes in any hour.
[4] The noise standard plus 15 dBA for a cumulative period of more than 1 minute in any hour.
[5] The noise standard plus 20 dBA or the maximum measured ambient noise level for any period of time.
dBA = A-weighted decibels
L_{max} = maximum instantaneous noise level

In addition, Section 4-6-7 of the County's Noise Ordinance (County of Orange 2022) addresses construction noise and states that construction activity noise is exempt from the County's noise standards if conducted between the hours of 7:00 a.m. and 8:00 p.m. Monday through Saturday. Construction noise is prohibited on Sundays and national holidays. Should construction take place outside the exempt hours, the standards presented in Table F would apply.

Local Regulations

The noise regulations for the cities of San Juan Capistrano and San Clemente are provided below because the project site and surrounding sensitive receptors are located in these jurisdictions even though the County is the Lead Agency for the proposed project.

City of San Juan Capistrano

General Plan Noise Element. To ensure that noise does not adversely affect sensitive receptors, the City of San Juan Capistrano uses land use compatibility standards when planning and making development decisions. Table G summarizes City of San Juan Capistrano's noise standards for various types of land uses. The standards represent the maximum acceptable noise level and are used to determine noise impacts.

Table G: City of San Juan Capistrano Interior and Exterior Noise Standards

Land Use	Noise Standard (dBA CNEL)	
	Interior	Exterior
Residential (all) – Single-family, multifamily, duplex, mobile home	65	45
Residential – Transient lodging, hotels, motels, nursing homes, hospitals, assisted care facilities	65	45
Private offices, churches, libraries, theaters, concert halls, meeting halls, schools	65	45
General commercial, retail, reception, restaurant	65	50
Manufacturing, industrial[1]	—	—
Parks, playgrounds	65[2]	—
Golf courses, outdoor spectator sports	70[2]	—

Source: San Juan Capistrano General Plan Noise Element (City of San Juan Capistrano 1999).

[1] Noise standards not applicable to industrial districts.

[2] Outdoor environment is limited to playground areas, picnic areas, and other areas of frequent human use.

CNEL = Community Noise Equivalent Level

dBA = A-weighted decibels

The City of San Juan Capistrano General Plan Noise Element also contains goals and policies that must be used to guide decisions concerning land uses that are common sources of excessive noise levels. The City of San Juan Capistrano General Plan Noise Element policies that are applicable to the proposed project include the following:

- **Policy 1.2:** Provide noise control measures and sound attenuating construction in areas of new construction or rehabilitation.

- **Policy 3.1:** Reduce the impacts of noise-producing land uses and activities on noise-sensitive land uses.

Municipal Code. Section 9-3.531 of the City of San Juan Capistrano's Municipal Code provides noise standards for determining noise violations affecting residential, public, and institutional uses. Table H provides the exterior noise level standards applicable for residential, public, and institutional uses. Each of the noise levels provided in Table H shall be reduced by 5 dBA for impacts of simple-tone noises or noise consisting of speech or music. The City of San Juan Capistrano Municipal Code provides the interior noise level standards for residential uses only during nighttime hours (10:00 p.m. to 7:00 a.m.). These standards would not be applicable to the project because the project would operate from 7:00 a.m. to 5:00 p.m.

Section 9-3.531(d) of the City of San Juan Capistrano Municipal Code states that noise sources associated with construction, repairs, remodeling, or the grading of any real property shall not be exempted if conducted from 6:00 p.m. to 7:00 a.m. Monday through Friday, from 4:30 p.m. to 8:30 a.m. on Saturday, or anytime on Sunday or a national holiday.

Table H: City of San Juan Capistrano Exterior Noise Level Standards

Land Use	Time Period	L_{50} (30 mins)	L_{25} (15 mins)	L_8 (5 mins)	L_2 (1 min)	L_{max} (Anytime)
Residential, Public, and Institutional	7:00 a.m. to 7:00 p.m.	65	70	75	80	85
	7:00 p.m. to 10:00 p.m.	55	60	65	70	75
	10:00 p.m. to 7:00 a.m.	45	50	55	60	65

Source: City of San Juan Capistrano Municipal Code (City of San Juan Capistrano 2022).
Note: Each of the noise levels shall be reduced by 5 dBA for impacts of simple-tone noises or noises consisting of speech or music.
dBA = A-weighted decibels
L_{50} = The exterior noise standard for a cumulative period of more than 30 minutes in any hour.
L_{25} = The exterior noise standard plus 5 dBA for a cumulative period of more than 15 minutes in any hour.
L_8 = The exterior noise standard plus 10 dBA for a cumulative period of more than 5 minutes in any hour.
L_2 = The exterior noise standard plus 15 dBA for a cumulative period of more than 1 minute in any hour.
L_{max} = The exterior noise standard plus 20 dBA or the maximum measured ambient noise level for any period of time.

City of San Clemente

General Plan Safety Element. The following are the applicable City of San Clemente General Plan Safety Element goals and policies related to noise:

- **Goal:** Minimize exposure to excessive noise levels by taking appropriate actions to avoid or mitigate the detrimental effects of exposure to excessive noise levels on humans and animals and, in particular, on sensitive land uses.

- **Policy S-4.01:** Noise Control. Effectively control ambient and stationary noise conditions by maintaining baseline information, monitoring conditions, following State guidelines, and enforcing locally adopted ordinances and building codes.

- **Policy S-4.03:** Interagency Collaboration. Encourage and collaborate with local, regional, and statewide transportation agencies to minimize transportation related noise impacts and provide appropriate mitigation measures that also consider impacts to community character and on natural resources (e.g., views).

- **Policy S-4.06:** Truck Routes. To minimize truck traffic noise impacts to sensitive land uses, designate areas where truck traffic is prohibited.

Municipal Code. Section 8.48.050 of the City of San Clemente Municipal Code limits exterior noise levels at residential properties, which shall not exceed the allowable exterior noise standards shown in Table I. In the event that the ambient noise level exceeds any of the above noise limits, the cumulative period applicable to that category shall be increased to reflect that ambient noise level.

Section 8.48.090(E) of the City of San Clemente Municipal Code states that noise sources associated with construction activity are exempt from the City's noise standards, if conducted between the hours of 7:00 a.m. and 6:00 p.m. on Monday through Friday or between the hours of 8:00 a.m. and 6:00 p.m. on Saturday, and at no time on a Sunday or a City-recognized holiday, and provided all grading activities also comply with Section 15.36.190 of the City of San Clemente Municipal Code regarding time of grading operations.

Table I: City of San Clemente Exterior Noise Level Standards

Land Use	Time Period	L_{50} (30 mins)	L_{25} (15 mins)	L_8 (5 mins)	L_2 (1 min)	L_{max} (Anytime)
Residential	7:00 a.m. to 10:00 p.m.	55	60	65	70	75
	10:00 p.m. to 7:00 a.m.	50	55	60	65	70

Source: City of San Clemente Municipal Code (City of San Clemente 2023).
Note: In the event that the ambient noise level exceeds any of the above noise limits, the cumulative period applicable to that category shall be increased to reflect that ambient noise level.
dBA = A-weighted decibels
L_{50} = The exterior noise standard for a cumulative period of more than 30 minutes in any hour.
L_{25} = The exterior noise standard plus 5 dBA for a cumulative period of more than 15 minutes in any hour.
L_8 = The exterior noise standard plus 10 dBA for a cumulative period of more than 5 minutes in any hour.
L_2 = The exterior noise standard plus 15 dBA for a cumulative period of more than 1 minute in any hour.
L_{max} = The exterior noise standard plus 20 dBA or the maximum measured ambient noise level for any period of time.

EXISTING SETTING

Overview of the Existing Noise Environment

The primary existing noise sources in the project area are wind, birds, occasional distant heavy equipment movement and back-up beeps, and occasional aircraft flyovers. Traffic noise is not audible at the project site.

Land Uses in the Project Vicinity

The project site is surrounded by open space to the west and existing portions of the landfill to the north, east, and south. The closest residences are located west and south of the project site.

Ambient Noise Measurements

One long-term (24-hour) noise level measurement was conducted from January 17 through January 18, 2023, using a Larson Davis Type 2 Spark 706RC dosimeter. Table J shows the hourly L_{eq}, L_{max}, and L_{min} results from the long-term noise level measurement. Table K summarizes the results of the long-term noise level measurements along with a description of the measurement locations and noise sources that occurred during the measurement. As shown in Table K, the day, evening, and nighttime noise levels ranged from 42.9 to 55.8 dBA L_{eq}, 39.5 to 44.7 dBA L_{eq}, and 38.0 to 44.6 dBA L_{eq}, respectively. Also, the calculated CNEL level from the long-term noise level measurement at LT-1 was 50.0 dBA. Figure 3 shows the long-term monitoring location.

Existing Aircraft Noise

Airport-related noise levels are primarily associated with aircraft engine noise made while aircraft are taking off, landing, or running their engines while still on the ground. The project site is outside the 60 dBA CNEL noise contour of John Wayne Airport (JWA) based on the JWA 2021 annual CNEL noise contour (JWA 2021). There are no private airstrips within the vicinity of the project site. Therefore, the proposed project would not expose people working in the project area to excessive noise levels, and this topic is not further discussed.

Table J: Long-Term (24-Hour) Noise Level Measurement Results at LT-1

	Start Time	Date	Noise Level (dBA)		
			L_{eq}	L_{max}	L_{min}
1	11:00 AM	1/17/23	46.8	67.8	38.7
2	12:00 PM	1/17/23	52.3	69.2	38.9
3	1:00 PM	1/17/23	47.1	67.5	38.5
4	2:00 PM	1/17/23	49.1	71.8	39.0
5	3:00 PM	1/17/23	42.9	60.7	39.0
6	4:00 PM	1/17/23	45.7	63.7	40.3
7	5:00 PM	1/17/23	49.4	71.8	40.3
8	6:00 PM	1/17/23	44.9	67.5	39.3
9	7:00 PM	1/17/23	44.7	64.1	38.1
10	8:00 PM	1/17/23	41.4	66.9	37.8
11	9:00 PM	1/17/23	39.5	53.0	37.9
12	10:00 PM	1/17/23	39.2	52.2	37.8
13	11:00 PM	1/17/23	38.3	49.1	37.8
14	12:00 AM	1/18/23	38.8	55.9	37.8
15	1:00 AM	1/18/23	38.5	43.6	37.9
16	2:00 AM	1/18/23	38.2	45.7	37.9
17	3:00 AM	1/18/23	38.0	40.1	37.9
18	4:00 AM	1/18/23	38.0	43.6	37.9
19	5:00 AM	1/18/23	42.6	50.2	37.9
20	6:00 AM	1/18/23	44.6	51.7	40.0
21	7:00 AM	1/18/23	48.3	65.7	42.5
22	8:00 AM	1/18/23	55.8	75.0	44.0
23	9:00 AM	1/18/23	48.4	64.5	37.8
24	10:00 AM	1/18/23	53.9	69.2	37.7

Source: Compiled by LSA (2023).
dBA L_{eq} = equivalent continuous sound level measured in A-weighted decibels

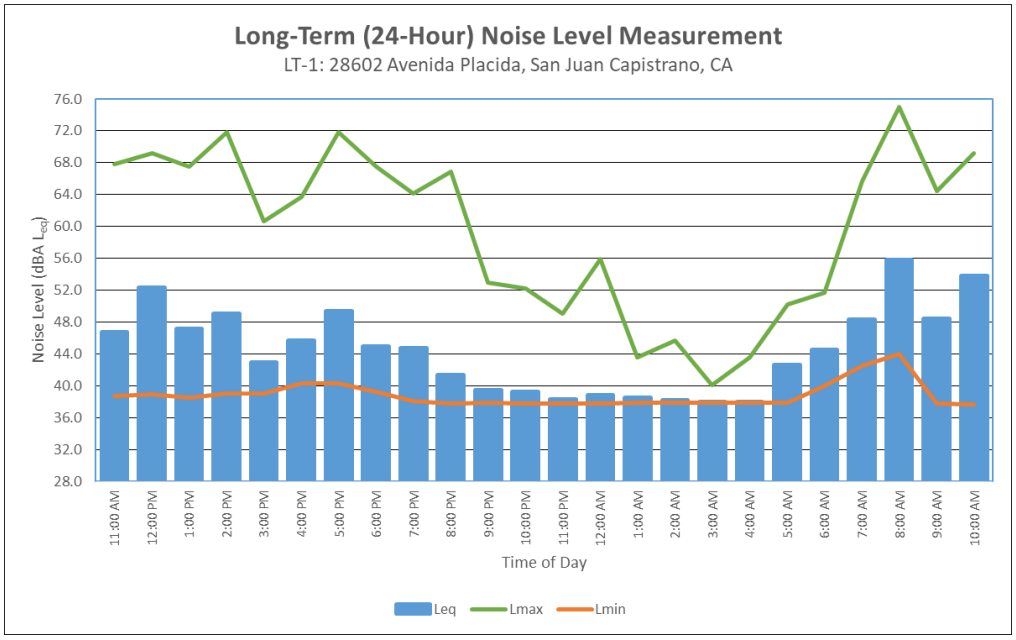

Table K: Long-Term Ambient Noise Monitoring Results

Monitor No.	Location	Noise Level (dBA)				Noise Sources
		L_{eq}			CNEL	
		Day	Evening	Night		
LT-1	28522 Avenida Placida, in front of the residence.	42.9–55.8	39.5–44.7	38.0–44.6	50.0	Wind and occasional noise from vehicles and aircraft.

Source: Compiled by LSA (2023).
Note: Long-term (24-hour) noise level measurements were conducted from January 17, 2023, to January 18, 2023.
CNEL = Community Noise Equivalent Level
dBA = A-weighted decibels
ft = foot/feet
L_{eq} = equivalent continuous sound level
L_{max} = maximum instantaneous noise level

Existing Traffic Noise

The Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108) was used to evaluate traffic-related noise conditions along roadway segments in the project vicinity. This model requires various parameters, including traffic volumes, vehicle mix, vehicle speed, and roadway geometry, to compute typical equivalent noise levels during daytime, evening, and nighttime hours. The resultant noise levels are weighted and summed over 24-hour periods to determine the CNEL values. Traffic volumes were obtained from the *Capistrano Greenery at Prima Deshecha Landfill Traffic Impact Analysis* (LSA 2023b). The vehicle mix on Ortega Highway was obtained from the California Department of Transportation's (Caltrans) *Annual Average Daily Trucks on the California State Highway System* (Caltrans 2020). Table L provides the existing traffic noise levels in the project vicinity. These noise levels represent the worst-case scenario, which assumes that no shielding is provided between the traffic and the location where the noise contours are drawn. Attachment C provides the specific assumptions used in developing these noise levels and model printouts.

Table L: Existing Traffic Noise Levels Without Project

Roadway Segment	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane
Ortega Highway between I-5 SB Ramps and I-5 NB Ramps	50,730	246	524	1,126	77.1
Ortega Highway between I-5 NB Ramps and Rancho Viejo Road	45,487	229	487	1,048	76.9
Ortega Highway between Rancho Viejo Road and La Novia Avenue	37,532	234	500	1,075	77.4
Ortega Highway between Via Cordova and Calle Entradero	36,421	261	563	1,211	79.5
Ortega Highway between Calle Entradero Road and Reata Road	33,853	249	536	1,154	79.2
Ortega Highway between Reata Road and Antonio-Avenida La Pata	31,853	304	654	1,408	80.0

Source: Compiled by LSA (2023).
ADT = average daily traffic
CNEL = Community Noise Equivalent Level
dBA = A-weighted decibels
ft = foot/feet
I = Interstate
NB = northbound
SB = southbound

IMPACTS

Short-Term Construction Noise Impacts

Two types of short-term noise impacts could occur during construction on the project site. The first type would be from construction crew commutes and the transport of construction equipment and materials to the project site and would incrementally raise noise levels on roadways leading to the site. The pieces of construction equipment for construction activities would move on site, would remain for the duration of each construction phase, and would not add to the daily traffic volume in the project vicinity. Although there would be a relatively high single-event noise exposure potential causing intermittent noise nuisance (passing trucks at 50 ft would generate up to a maximum of 84 dBA), the effect on longer-term ambient noise levels would be small because the number of daily construction-related vehicle trips is small compared to existing daily traffic volumes on Avenida La Pata and Ortega Highway. The site preparation and paving phases would generate the most trips of all of the construction phases, at 42 trips per day, based on the California Emissions Estimator Model (CalEEMod) (Version 2022.1.0) results contained in the attachment of the *Air Quality, Energy, and Greenhouse Gas Emissions Analysis for the Capistrano Greenery at Prima Deshecha Landfill Project* (LSA 2023a). Ortega Highway would be used to access the project site. Based on Table L, Ortega Highway has an estimated existing average daily traffic volumes of 31,853 near the project site. Based on the information above, construction-related traffic would increase noise by up to 0.01 dBA. A noise level increase of less than 3 dBA would not be perceptible to the human ear in an outdoor environment. Therefore, short-term construction-related impacts associated with worker commutes and transport of construction equipment and materials to the project site would be less than significant.

The second type of short-term noise impact is related to noise generated from construction activities. Construction is performed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. The proposed project anticipates site preparation, grading, and paving phases of construction. These various sequential phases change the character of the noise generated on a project site. Therefore, the noise levels vary as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table M lists the L_{max} recommended for noise impact assessments for typical construction equipment included in the *FHWA Highway Construction Noise Handbook* (2006) based on a distance of 50 ft between the equipment and a noise receptor.

Table N lists the anticipated construction equipment for each construction phase based on the CalEEMod (Version 2020.4.0) results contained in the attachment of the *Air Quality, Energy, and Greenhouse Gas Emissions Analysis for the Capistrano Greenery at Prima Deshecha Landfill Project* (LSA 2023a). Table N shows the combined noise level at 50 ft from all of the equipment in each phase as well as the L_{eq} noise level for each type of equipment at 50 ft based on the quantity, reference instantaneous maximum (L_{max}) noise level at 50 ft, and acoustical usage factor. As shown in Table N, construction noise levels would reach up to 87.7 dBA L_{max} (83.7 L_{eq}) at a distance of 50 ft.

Table M: Typical Construction Equipment Noise Levels

Equipment Description	Acoustical Usage Factor[1] (%)	Maximum Noise Level (L_{max}) at 50 ft[2]
Backhoe	40	78
Compactor (ground)	20	83
Compressor	40	78
Concrete Mixer Truck	40	79
Crane	16	81
Dozer	40	82
Dump Truck	40	76
Excavator	40	81
Flatbed Truck	40	74
Forklift	20	75
Front-End Loader	40	79
Grader	40	85
Impact Pile Driver	20	101
Jackhammer	20	89
Pavement Scarifier	20	90
Paver	50	77
Pickup Truck	40	75
Pneumatic Tools	50	85
Pump	50	81
Rock Drill	20	81
Roller	20	80
Scraper	40	84
Tractor	40	84
Welder	40	74

Source: *FHWA Highway Construction Noise Handbook,* Table 9.1 (FHWA 2006).
Note: The noise levels reported in this table are rounded to the nearest whole number.

[1] Usage factor is the percentage of time during a construction noise operation that a piece of construction equipment is operating at full power.

[2] Maximum noise levels were developed based on actual measured from the CA/T program to be consistent with the City of Boston, Massachusetts, Noise Code for the "Big Dig" project.

CA/T = Central Artery/Tunnel
FHWA = Federal Highway Administration
ft = foot/feet
L_{max} = maximum instantaneous noise level

Table N: Summary of Construction Phase, Equipment, and Noise Levels

Construction Phase	Construction Equipment	Quantity	Reference Noise Level at 50 ft (dBA L_{max})	Acoustical Usage Factor[1] (%)	Noise Level at 50 ft (dBA)			
					L_{max}	L_{eq}	Combined L_{max}	Combined L_{eq}
Site Preparation	Excavator	1	81	40	81.0	77.0	86.7	82.7
	Front-End Loader	1	79	40	79.0	75.0		
	Backhoe	1	78	40	78.0	74.0		
	Large Bulldozer	1	82	40	82.0	78.0		
	Dump Truck	1	76	40	76.0	72.0		
Grading	Excavator	1	81	40	81.0	77.0	86.7	82.7
	Front-End Loader	1	79	40	79.0	75.0		
	Backhoe	1	78	40	78.0	74.0		
	Large Bulldozer	1	82	40	82.0	78.0		
	Dump Truck	1	76	40	76.0	72.0		
Paving	Excavator	1	81	40	81.0	77.0	87.7	83.7
	Front-End Loader	1	79	40	79.0	75.0		
	Backhoe	1	78	40	78.0	74.0		
	Large Bulldozer	1	82	40	82.0	78.0		
	Concrete Mixer Truck	2	79	40	82.0	78.0		

Source: Compiled by LSA (2023).

[1] The acoustical usage factor is the percentage of time during a construction noise operation that a piece of construction equipment operates at full power.

dBA = A-weighted decibels
ft = foot/feet
L_{eq} = equivalent continuous sound level
L_{max} = maximum instantaneous noise level

The closest residential property lines are located approximately 1,760 ft to the west and 2,635 ft to the south from the center of the project site and may be subject to short-term construction noise reaching 56.8 dBA L_{max} (52.8 dBA L_{eq}) and 53.3 dBA L_{max} (49.3 dBA L_{eq}), respectively, generated by project construction activities. In addition, the terrain between the project construction boundary and the residences would provide additional noise reduction. Construction noise is temporary and would stop once project construction is completed. Compliance with the permitted hours of construction pursuant to Section 4-6-7 of the County Municipal Code, Section 9-3.531(d) of the City of San Clemente Municipal Code, and Section 8.48.090(E) of the City of San Juan Capistrano Municipal Code would ensure construction noise would not be generated during the more sensitive nighttime hours. Therefore, noise generated by project construction activities would be less than significant. No mitigation measures are required.

Short-Term Construction Vibration Impacts

This construction vibration impact analysis discusses the level of human annoyance using vibration levels in VdB and assesses the potential for building damage using vibration levels in PPV (in/sec). Vibration levels calculated in RMS velocity are best for characterizing human response to building vibration, whereas vibration levels in PPV are best for characterizing damage potential.

Table O shows the reference vibration levels at a distance of 25 ft for each type of standard construction equipment from the *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018). Project construction is expected to use a large bulldozer and a loaded truck which would generate 87 VdB (0.089 PPV [in/sec]) and 86 VdB (0.076 PPV [in/sec]), respectively, when measured at 25 ft.

Table O: Vibration Source Amplitudes for Construction Equipment

Equipment	Reference PPV/L_V at 25 ft	
	PPV (in/sec)	L_V (VdB)[1]
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
Vibratory Roller	0.210	94

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).

[1] RMS VdB re 1 µin/sec.

µin/sec = microinches per second
ft = foot/feet
FTA = Federal Transit Administration
in/sec = inches per second
L_V = velocity in decibels
PPV = peak particle velocity
RMS = root-mean-square
VdB = vibration velocity in decibels

The greatest levels of vibration are anticipated to occur during the fine grade pad, asphalt grindings, berm and retention basin building, and water line installation. All other phases are expected to result in lower vibration levels. The distance to the nearest buildings for vibration impact analysis is measured between the nearest off-site buildings and the project boundary (assuming the construction equipment would be used at or near the project boundary) because vibration impacts normally occur within the buildings.

The formula for vibration transmission is provided below.

$$L_vdB\ (D) = L_vdB\ (25\ feet) - 30\ Log\ (D/25)$$

$$PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$$

Table P lists the projected vibration levels from various construction equipment expected to be used on the project site in the active construction area to the nearest buildings in the project vicinity. As shown in Table P, the closest residential building is approximately 1,290 ft west of the active project construction area near the center of the project site and would experience vibration levels of up to 36 VdB. These vibration levels would not result in community annoyance because they would not exceed the FTA community annoyance threshold of 78 VdB for daytime residences. Other building structures that surround the project site would experience lower vibration levels because they are farther away.

Similarly, Table Q lists the projected vibration levels from various construction equipment expected to be used on the project site at the project construction boundary to the nearest buildings in the project vicinity. As shown in Table Q, the closest residential building is approximately 1,180 ft west of the project construction boundary and would experience vibration levels less than 0.001 PPV (in/sec). This vibration level would not result in building damage because residential buildings would be constructed equivalent to non-engineered timber and masonry, and vibration levels would not exceed the FTA vibration damage threshold of 0.20 PPV (in/sec). Other building structures that surround the project site would experience lower vibration levels because they are farther away and would be constructed equivalent to non-engineered timber and masonry. Therefore, vibration levels generated by project construction activities would be less than significant. No mitigation measures are required.

Table P: Potential Construction Vibration Annoyance

Land Use	Direction	Equipment/Activity	Reference Vibration Level (VdB) at 25 ft	Distance to Structure (ft)[1]	Vibration Level (VdB)
Residence	West	Large Bulldozers	87	1,290	36
		Loaded trucks	86	1,290	35
Residence	South	Large Bulldozers	87	2,170	29
		Loaded trucks	86	2,170	28

Source: Compiled by LSA (2023).
Note: The FTA-recommended annoyance threshold of 78 VdB for residential homes was used to assess potential construction vibration annoyance.
[1] Distance from the active construction area near the center of the project site to the building structure.
ft = foot/feet
VdB = vibration velocity decibels
FTA = Federal Transit Administration

Table Q: Potential Construction Vibration Damage

Land Use	Direction	Equipment/Activity	Reference Vibration Level at 25 ft	Distance to Structure (ft)[1]	Vibration Level
			PPV (in/sec)		PPV (in/sec)
Residence	West	Large bulldozers	0.089	1,180	<0.001
		Loaded trucks	0.076	1,180	<0.001
Residence	South	Large bulldozers	0.089	2,060	<0.001
		Loaded trucks	0.076	2,060	<0.001

Source: Compiled by LSA (2023).
Note: The FTA-recommended building damage threshold is 0.20 PPV (in/sec) at the receiving non-engineered timber and masonry building.
[1] Distance from the project construction boundary to the building structure.
ft = foot/feet
FTA = Federal Transit Administration
in/sec = inches per second
PPV = peak particle velocity
VdB = vibration velocity decibels

Long-Term Traffic Noise Impacts

The FHWA Highway Traffic Noise Prediction Model (FHWA-RD-77 108) was used to evaluate highway traffic-related noise conditions along roadway segments in the project vicinity. This model requires various parameters, including traffic volumes, vehicle mix, vehicle speed, and roadway geometry, to compute typical equivalent noise levels during daytime, evening, and nighttime hours. The resultant noise levels are weighted and summed over 24-hour periods to determine the CNEL values. Traffic volumes were obtained from the *Capistrano Greenery at Prima Deshecha Landfill Traffic Impact Analysis* (LSA 2023b). The vehicle mix on Ortega Highway was obtained from Caltrans' *Annual Average Daily Trucks on the California State Highway System* (Caltrans 2020). Table R shows the existing traffic noise levels without and with the project within the project vicinity. These noise levels represent the worst-case scenario, which assumes that no shielding is provided between the traffic and the location where the noise contours are drawn. Attachment C provides the specific assumptions used in developing these noise levels and model printouts.

Table R shows that there would be no project-related traffic noise increases. Therefore, traffic noise impacts from project-related traffic on off-site sensitive receptors would be less than significant, and no mitigation measures are required.

Table R: Existing Traffic Noise Levels Without and With Project

Roadway Segment	Without Project Traffic Conditions					With Project Traffic Conditions					
	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane	Increase from Baseline Conditions
Ortega Highway between I-5 SB Ramps and I-5 NB Ramps	50,730	246	524	1,126	77.1	50,830	247	525	1,128	77.1	0.0
Ortega Highway between I-5 NB Ramps and Rancho Viejo Road	45,487	229	487	1,048	76.9	45,687	229	489	1,051	76.9	0.0
Ortega Highway between Rancho Viejo Road and La Novia Avenue	37,532	234	500	1,075	77.4	37,732	234	502	1,079	77.4	0.0
Ortega Highway between Via Cordova and Calle Entradero	36,421	261	563	1,211	79.5	36,621	262	565	1,216	79.5	0.0
Ortega Highway between Calle Entradero Road and Reata Road	33,853	249	536	1,154	79.2	34,053	250	538	1,158	79.2	0.0
Ortega Highway between Reata Road and Antonio-Avenida La Pata	31,853	304	654	1,408	80.0	32,053	305	656	1,414	80.0	0.0

Source: Compiled by LSA (2023).
ADT = average daily traffic
CNEL = Community Noise Equivalent Level
dBA = A-weighted decibels
ft = foot/feet
I = Interstate
NB = northbound
SB = southbound

Long-Term Noise Impacts From Operations

The existing compost operation includes one windrow turner, two front-end loaders, one mobile screen, one water truck, and one dump truck. The additional on-site equipment for chipping and grinding activities during project operation would consist of a one chipper/grinder and two conveyors, and the additional on-site equipment for the CASP operation would include one mechanical cover winder, blowers, and an emergency generator. LSA conducted reference noise level measurements of the windrow turner, mobile screen, chipper/grinder, and two conveyors, and they were measured to be 75 dBA L_{max} at 50 ft, 80 dBA L_{max} at 50 ft, 76 dBA L_{max} at 50 ft, and 70 dBA L_{max} at 50 ft, respectively. Table S below summarizes reference noise levels of the additional equipment used during project operations. Noise generated from the cover winding unit would be minimal and is not expected to contribute to the project operational noise levels. In addition, based on information from OCWR, the project proposes to install blowers, which may operate at night. The blowers are expected to operate at a level that does not disrupt normal conversation when standing directly next to them, so they are not expected to contribute to the project operational noise levels. A composite equivalent continuous noise level of all equipment operating on the project site would be 88.7 dBA L_{eq} at 50 ft based on an acoustical usage factor of 100 percent and the reference maximum noise level at 50 ft for each piece of equipment shown in Table S.

Table S: Operations Equipment Noise Levels

Equipment Description	Acoustical Usage Factor (%)	Maximum Noise Level (L_{max}) at 50 ft
Windrow Turner[1]	100	75
Front-End Loader (x2)[2]	100	79
Mobile Screen[1]	100	80
Water Truck	100	75
Dump Truck	100	76
Chipper/Grinder[1]	100	76
Conveyor[1] (x2)[2]	100	70
Emergency Generator	100	85

Source: Roadway Construction Noise Model (Federal Highway Administration 2006), compiled by LSA (2023).
Note: Noise levels reported in this table are rounded to the nearest whole number.
[1] Reference noise level for this equipment was based on one piece of equipment measured by LSA.
[2] The SoundPLAN noise model factors in two pieces of equipment.
ft = foot/feet
L_{max} = maximum instantaneous sound level

Table T shows the noise levels generated from the operations of the proposed project at the closest residences south, west, and north of the project site, which are represented by Receptors R-1 through R-11. Noise generated from on-site composting would potentially reach up to 48.8 dBA L_{eq} for residences south of the project site, 41.1 dBA L_{eq} for residences west of the project site, and 43.8 dBA L_{eq} for residences north of the project site. These noise levels would not exceed the County's exterior daytime 30-minute (L_{50}) noise standard of 55 dBA for residential land uses. Also, the County's exterior evening and nighttime noise standards would not be exceeded because the proposed project would not operate during evening or nighttime hours. The SoundPLAN printout and the receptor locations for the proposed project operations are shown in Attachment D.

Table T: Operational Noise Levels (with Chipper/Grinder in Greenery Area)

Land Use	Direction	Distance from Composting Site (ft)	Composite Noise Level (dBA L_{eq})	Daytime Noise Standard (dBA L_{50})	Exceed?
R-1: Residence on Diamante	South	2,455	48.0	55	No
R-2: Residence on Carta De Plata	South	2,445	48.8		
R-3: Residence on Carta De Plata	South	2,350	48.5		
R-4: Residence on Portico Del Norte	South	2,400	48.2		
R-5: Residence on Portico Del Norte	South	2,435	46.5		
R-6: Residence on Eminencia Del Norte	South	2,245	48.5		
R-7: Residence on Avenida Placida	West	1,280	41.1		
R-8: Residence on Avenida Placida	West	1,245	40.7		
R-9: Residence on Avenida Placida	West	1,405	40.6		
R-10: Residence on Paseo Carmona	North	2,540	43.8		
R-11: Residence on Paseo Carmona	North	2,720	34.9		

Source: Compiled by LSA (2023).
dBA = A-weighted decibels
ft = foot/feet
L_{eq} = equivalent continuous sound level

In addition, the proposed project would have the option to operate the chipper/grinder equipment in the landfill area immediately north or east of the project site as part of the proposed green waste composting operation. The locations of the chipper/grinder equipment in the landfill area are shown in Figure 4 in Attachment B. A composite equivalent continuous noise level of all equipment except the chipper/grinder equipment would be 88.4 dBA L_{eq} at 50 ft based on an acoustical usage factor of 100 percent and the reference maximum noise level information shown in Table S. The chipper/grinder equipment would generate a noise level of 76 dBA L_{eq} at 50 ft based on an acoustical usage factor of 100 percent as shown in Table S.

Table U shows the noise levels generated from the operations of the proposed project with the chipper/grinder equipment operating in the landfill area immediately north or east of the project site at the closest residences which are represented by Receptors R-1 through R-11. Noise generated from on-site composting with the chipper/grinder equipment operating in the landfill area would potentially reach up to 48.8 dBA L_{eq} for residences south of the project site, 41.0 dBA L_{eq} for residences west of the project site, and 44.0 dBA L_{eq} for residences north of the project site. Under this option for the proposed project, noise levels would not exceed the County's exterior daytime 30-minute (L_{50}) noise standard of 55 dBA for residential land uses. Also, the proposed project under this option would not operate during evening or nighttime hours and the County's exterior evening and nighttime noise standards would not be exceeded. The SoundPLAN printout and the receptor locations for the proposed project operations with the chipper/grinder equipment operating in the landfill area are shown in Attachment D. Therefore, noise levels generated from project operations would be less than significant. No mitigation measures are required.

Table U: Operational Noise Levels (with Chipper/Grinder Equipment in Landfill Area)

Land Use	Direction	Distance from Composting Site (ft)	Distance from Chipper/ Grinder Equipment (ft)	Composite Noise Level (dBA L_{eq})	Daytime Noise Standard (dBA L_{50})	Exceed?
R-1: Residence on Diamante	South	2,455	2,030	48.0	55	No
R-2: Residence on Carta De Plata	South	2,445	2,335	48.7		
R-3: Residence on Carta De Plata	South	2,350	2,355	48.8		
R-4: Residence on Portico Del Norte	South	2,400	2,710	48.4		
R-5: Residence on Portico Del Norte	South	2,435	2,985	46.4		
R-6: Residence on Eminencia Del Norte	South	2,245	2,540	48.5		
R-7: Residence on Avenida Placida	West	1,280	1,250	41.0		
R-8: Residence on Avenida Placida	West	1,245	1,175	40.6		
R-9: Residence on Avenida Placida	West	1,405	1,265	40.6		
R-10: Residence on Paseo Carmona	North	2,540	1,050	44.0		
R-11: Residence on Paseo Carmona	North	2,720	1,005	36.5		

Source: Compiled by LSA (2023).
dBA = A-weighted decibels
ft = foot/feet
L_{eq} = equivalent continuous sound level

Long-Term Vibration Impacts

The proposed project would generate vibration from on-site off-road equipment. The greatest levels of vibration would be generated by the windrow turner and dump truck. It was assumed that the windrow turner would generate similar levels of vibration as a large bulldozer. As shown in Table O, a large bulldozer and loaded truck would generate a vibration level of 87 VdB (0.089 PPV [in/sec]) and 86 VdB (0.076 PPV [in/sec]) at 25 ft, respectively. Table P shows that the closest residential building would experience vibration levels of up to 36 VdB. This vibration level would not result in community annoyance because vibration levels would not exceed the FTA community annoyance threshold of 78 VdB for daytime residences. In addition, Table Q shows that the closest residential building would experience vibration levels of less than 0.001 PPV (in/sec). This vibration level would not result in building damage because residential buildings would be constructed equivalent to non-engineered timber and masonry, and vibration levels would not exceed the FTA vibration damage threshold of 0.20 PPV (in/sec). In addition, vibration levels generated from project-related traffic on the adjacent roadways are unusual for on-road vehicles because the rubber tires and suspension systems of on-road vehicles provide vibration isolation. Therefore, vibration levels generated from project operations would be less than significant. No mitigation measures are required.

CONCLUSION

Short-term and long-term noise and vibration levels generated by the project would be less than significant. No mitigation measures are required. The implementation of the following regulatory measure would be required and would minimize short-term construction noise impacts.

- The construction contractor shall limit construction activities to between the hours of 7:00 a.m. and 6:00 p.m. on weekdays and between the hours of 8:30 a.m. and 4:30 p.m. on Saturdays pursuant to Section 4-6-7 of the County Municipal Code, Section 9-3.531(d) of the City of San Clemente Municipal Code, and Section 8.48.090(E) of the City of San Juan Capistrano Municipal Code. Construction noise is prohibited on Sundays and national or City recognized holidays.

No short-term or long-term noise and vibration reduction measures are required.

Attachments: A: References
B: Figures
C: FHWA Highway Traffic Noise Model Printouts
D: SoundPLAN Printouts

ATTACHMENT A

REFERENCES

California Department of Transportation (Caltrans). 2020. *Annual Average Daily Trucks on the California State Highway System*. Website: https://dot.ca.gov/-/media/dot-media/programs/traffic-operations/documents/census/aadt/2020-truck-aadt.xlsx (accessed August 2023).

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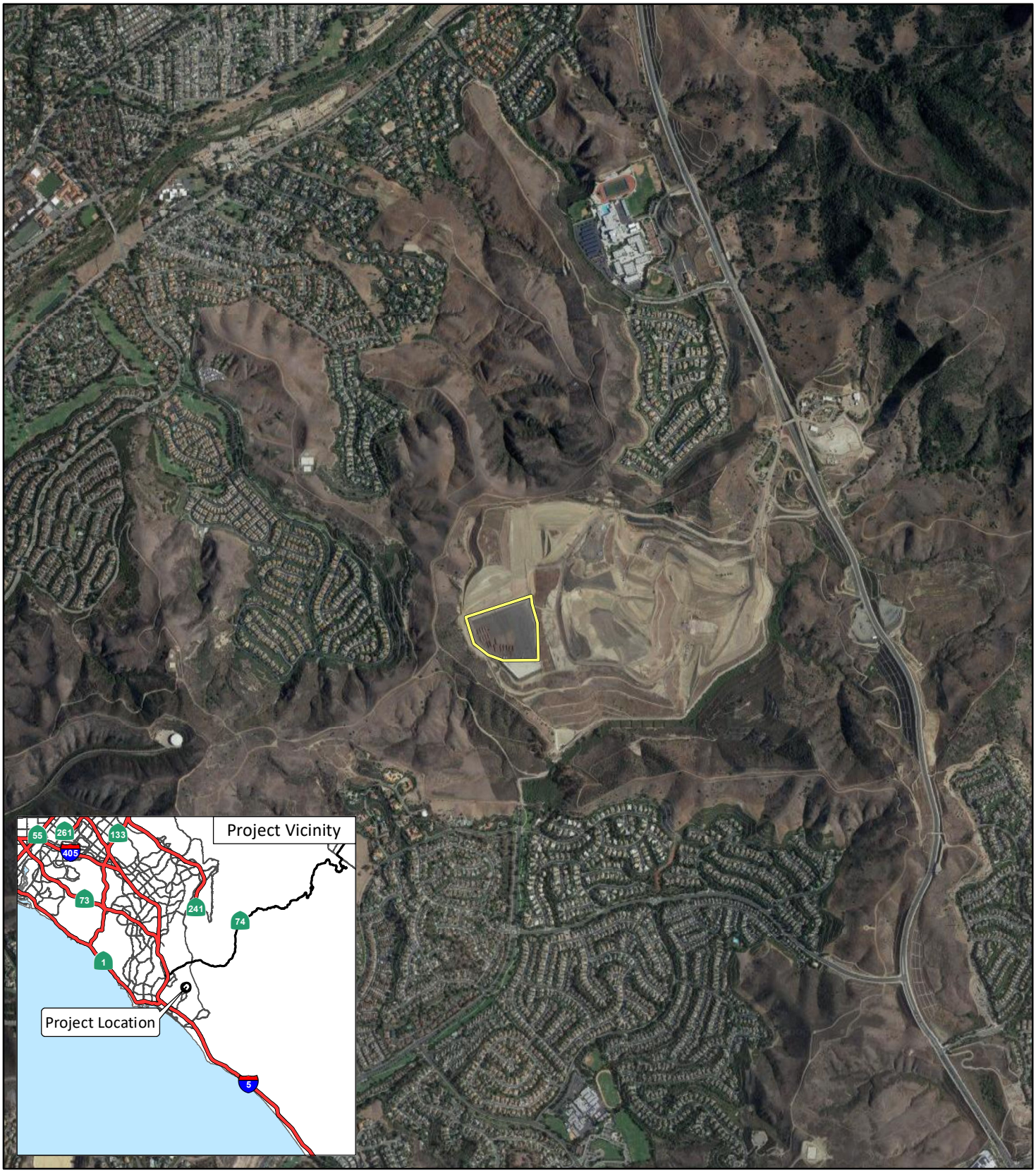
ATTACHMENT B

FIGURES



LSA

LEGEND

Project Location

FIGURE 1

N

0 1000 2000

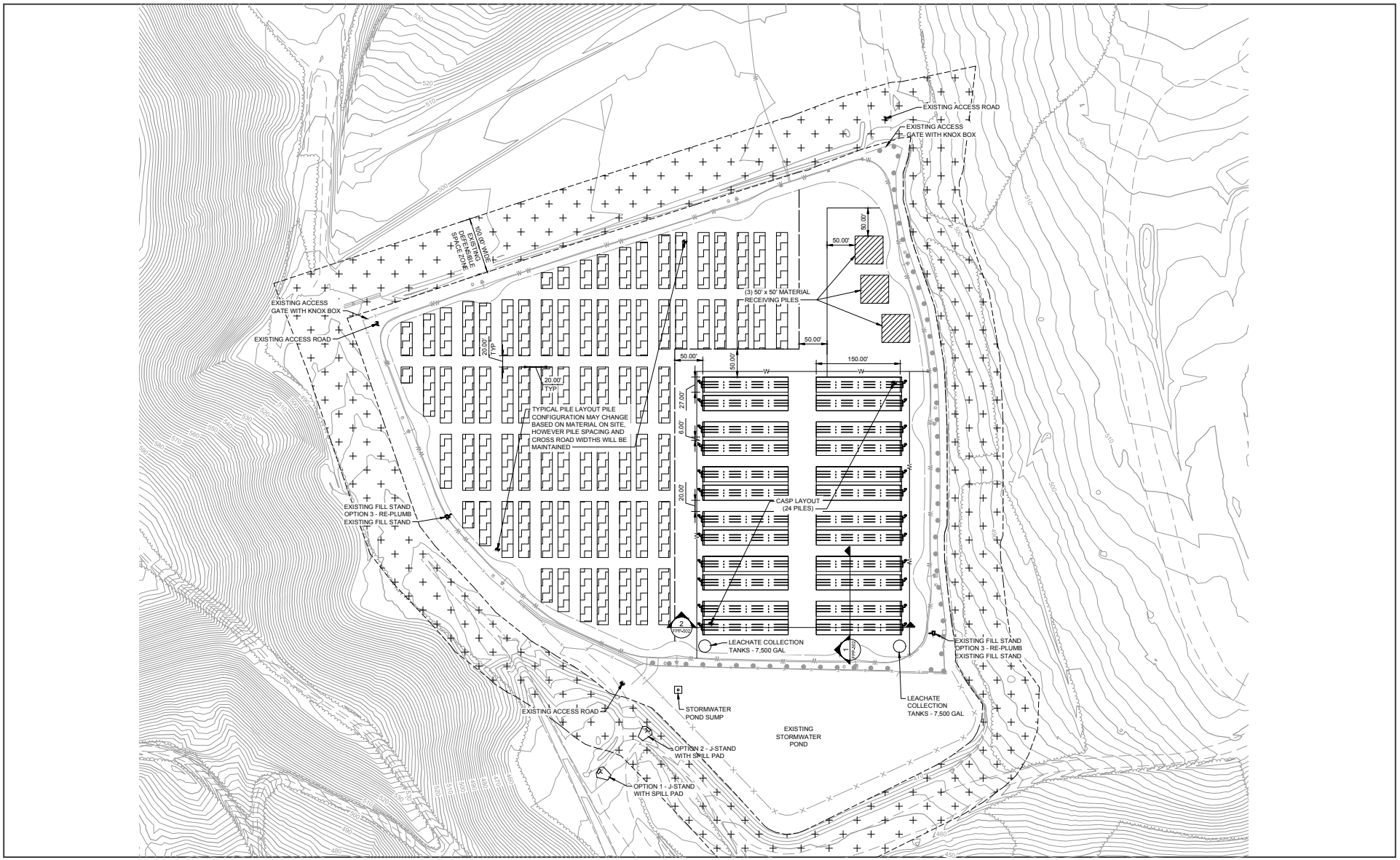
FEET

SOURCE: Bing Maps (2021)

J:\OCY2001.22\GIS\MXD\Project_Location.mxd (1/26/2023)

Capistrano Greenery at Prima Deshecha Landfill Project

Regional Project Location



LSA

FIGURE 2

N

0 160 320

FEET

SOURCE: Tetra Tech

I:\OCY2001.22\G\Site_Plan.ai (6/13/2023)

Capistrano Greenery at Prima Deshecha Landfill Project

Site Plan

LSA

FIGURE 3

LEGEND

Project Site Boundary

LT-1 Long-term Noise Monitoring Location

N

0 100 200

FEET

SOURCE: Google Earth

Capistrano Greenery at Prima Deshecha Landfill Project

Noise Monitoring Locations

I:\OCY2001.22\G\Noise_Locs.ai (1/26/2023)

LSA

LEGEND

Capistrano Greenery Boundary

Chipper/Grinder Equipment Area

FIGURE 4

N

0 475 950

FEET

Capistrano Greenery at Prima Deshecha Landfill Project

Chipper/Grinder Equipment Area

I:\OCY2001.22\G\Equipment_Area.ai (8/2/2023)

ATTACHMENT C

FHWA TRAFFIC NOISE MODEL PRINTOUTS

TABLE Existing Without Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/12/2023
ROADWAY SEGMENT: Ortega Highway between I-5 SB Ramps to I-5 NB Ramps
NOTES: Capistrano Greenery at Prima Deshecha Landfill - Existing Without Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 50730 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	53.25	8.86	6.59
M-TRUCKS	12.68	0.73	1.54
H-TRUCKS	14.14	0.44	1.77

ACTIVE HALF-WIDTH (FT): 42 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 77.08

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
246.2	524.3	1126.4	2424.9

TABLE Existing Without Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/12/2023
ROADWAY SEGMENT: Ortega Highway between I-5 NB Ramps and Rancho Viejo Road
NOTES: Capistrano Greenery at Prima Deshecha Landfill - Existing Without Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 45487 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	53.25	8.86	6.59
M-TRUCKS	12.68	0.73	1.54
H-TRUCKS	14.14	0.44	1.77

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 76.91

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
228.5	487.5	1047.8	2255.9

TABLE Existing Without Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/12/2023
ROADWAY SEGMENT: Ortega Highway between Rancho Viejo Road and La Novia Avenue
NOTES: Capistrano Greenery at Prima Deshecha Landfill - Existing Without Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 37532 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	53.25	8.86	6.59
M-TRUCKS	12.68	0.73	1.54
H-TRUCKS	14.14	0.44	1.77

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 77.42

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
233.6	499.9	1075.3	2315.5

TABLE Existing Without Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/12/2023
ROADWAY SEGMENT: Ortega Highway between Via Cordova and Calle Entradero
NOTES: Capistrano Greenery at Prima Deshecha Landfill - Existing Without Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 36421 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	53.25	8.86	6.59
M-TRUCKS	12.68	0.73	1.54
H-TRUCKS	14.14	0.44	1.77

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 79.49

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
261.4	562.5	1211.5	2609.4

TABLE Existing Without Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/12/2023
ROADWAY SEGMENT: Ortega Highway between Calle Entradero Road and Reata Road
NOTES: Capistrano Greenery at Prima Deshecha Landfill - Existing Without Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 33853 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	53.25	8.86	6.59
M-TRUCKS	12.68	0.73	1.54
H-TRUCKS	14.14	0.44	1.77

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 79.17

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
249.0	535.8	1153.8	2485.3

TABLE Existing Without Project-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/12/2023
ROADWAY SEGMENT: Ortega Highway between Reata Road and Antonio-Avenida La Pata
NOTES: Capistrano Greenery at Prima Deshecha Landfill - Existing Without Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 31853 SPEED (MPH): 55 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	53.25	8.86	6.59
M-TRUCKS	12.68	0.73	1.54
H-TRUCKS	14.14	0.44	1.77

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 79.98

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
303.9	653.7	1407.6	3031.9

TABLE Existing With Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/12/2023
ROADWAY SEGMENT: Ortega Highway between I-5 SB Ramps to I-5 NB Ramps
NOTES: Capistrano Greenery at Prima Deshecha Landfill - Existing With Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 50830 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	EVENING	NIGHT
AUTOS	53.25	8.86	6.59
M-TRUCKS	12.68	0.73	1.54
H-TRUCKS	14.14	0.44	1.77

ACTIVE HALF-WIDTH (FT): 42 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 77.09

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL 70 CNEL	65 CNEL	60 CNEL	55 CNEL
246.5	524.9	1127.9	2428.1

TABLE Existing With Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/12/2023
ROADWAY SEGMENT: Ortega Highway between I-5 NB Ramps and Rancho Viejo Road
NOTES: Capistrano Greenery at Prima Deshecha Landfill - Existing With Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 45687 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	53.25	8.86	6.59
M-TRUCKS	12.68	0.73	1.54
H-TRUCKS	14.14	0.44	1.77

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 76.93

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
229.2	488.9	1050.9	2262.5

TABLE Existing With Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/12/2023
ROADWAY SEGMENT: Ortega Highway between Rancho Viejo Road and La Novia Avenue
NOTES: Capistrano Greenery at Prima Deshecha Landfill - Existing With Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 37732 SPEED (MPH): 40 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	53.25	8.86	6.59
M-TRUCKS	12.68	0.73	1.54
H-TRUCKS	14.14	0.44	1.77

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 77.45

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
234.4	501.7	1079.1	2323.8

TABLE Existing With Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/12/2023
ROADWAY SEGMENT: Ortega Highway between Via Cordova and Calle Entradero
NOTES: Capistrano Greenery at Prima Deshecha Landfill - Existing With Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 36621 SPEED (MPH): 45 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	53.25	8.86	6.59
M-TRUCKS	12.68	0.73	1.54
H-TRUCKS	14.14	0.44	1.77

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 79.52

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
262.3	564.6	1215.9	2619.0

TABLE Existing With Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/12/2023
ROADWAY SEGMENT: Ortega Highway between Calle Entradero Road and Reata Road
NOTES: Capistrano Greenery at Prima Deshecha Landfill - Existing With Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 34053 SPEED (MPH): 45 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	53.25	8.86	6.59
M-TRUCKS	12.68	0.73	1.54
H-TRUCKS	14.14	0.44	1.77

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 79.20

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
249.9	537.9	1158.4	2495.1

TABLE Existing With Project-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/12/2023
ROADWAY SEGMENT: Ortega Highway between Reata Road and Antonio-Avenida La Pata
NOTES: Capistrano Greenery at Prima Deshecha Landfill - Existing With Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 32053 SPEED (MPH): 55 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	53.25	8.86	6.59
M-TRUCKS	12.68	0.73	1.54
H-TRUCKS	14.14	0.44	1.77

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 80.01

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
305.2	656.4	1413.5	3044.5

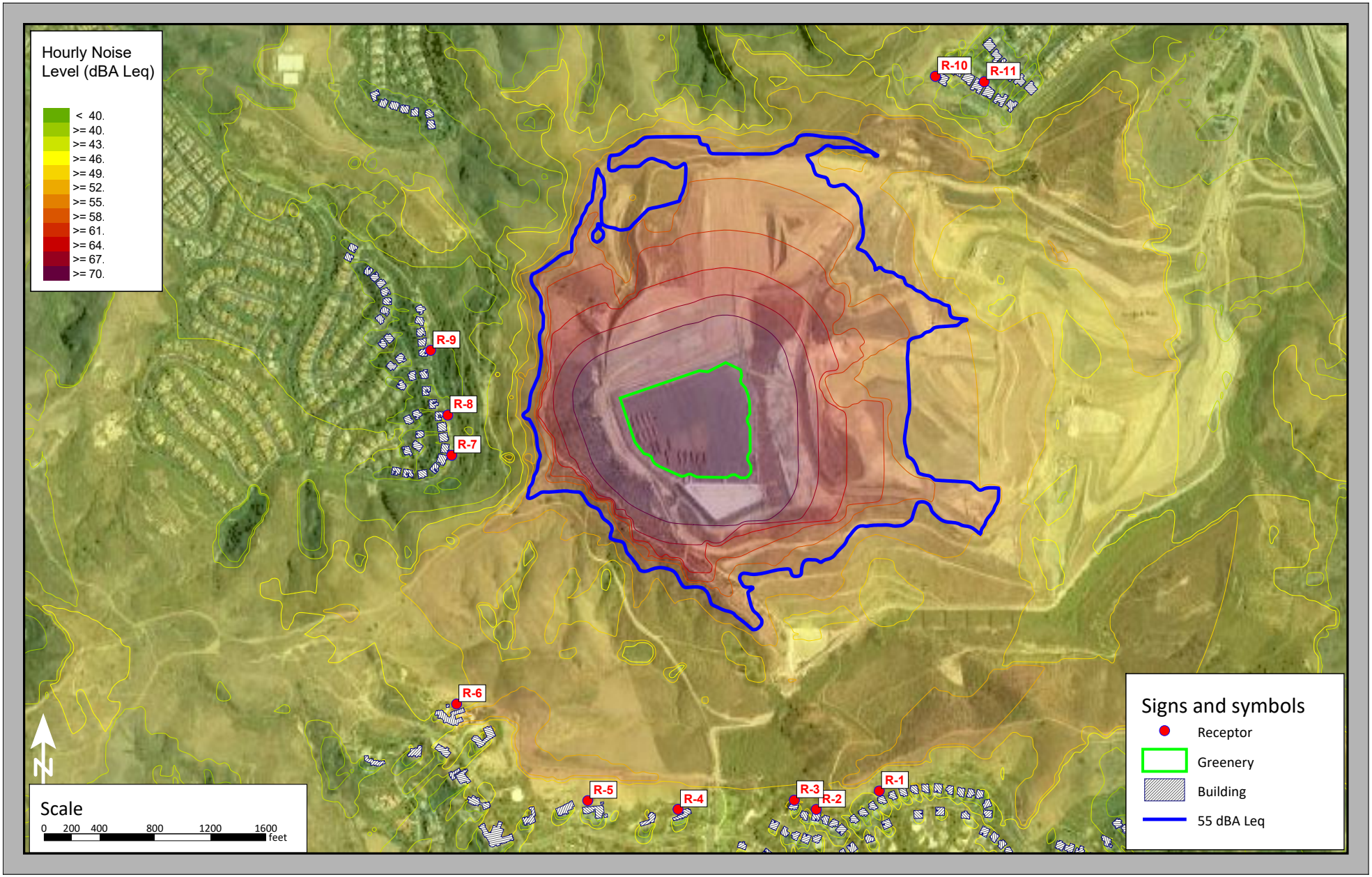
ATTACHMENT D

SOUNDPLAN PRINTOUTS

Prima Capo Greenery Updates

Project No. OCY2001.22

Project Operational Noise Levels - Daytime



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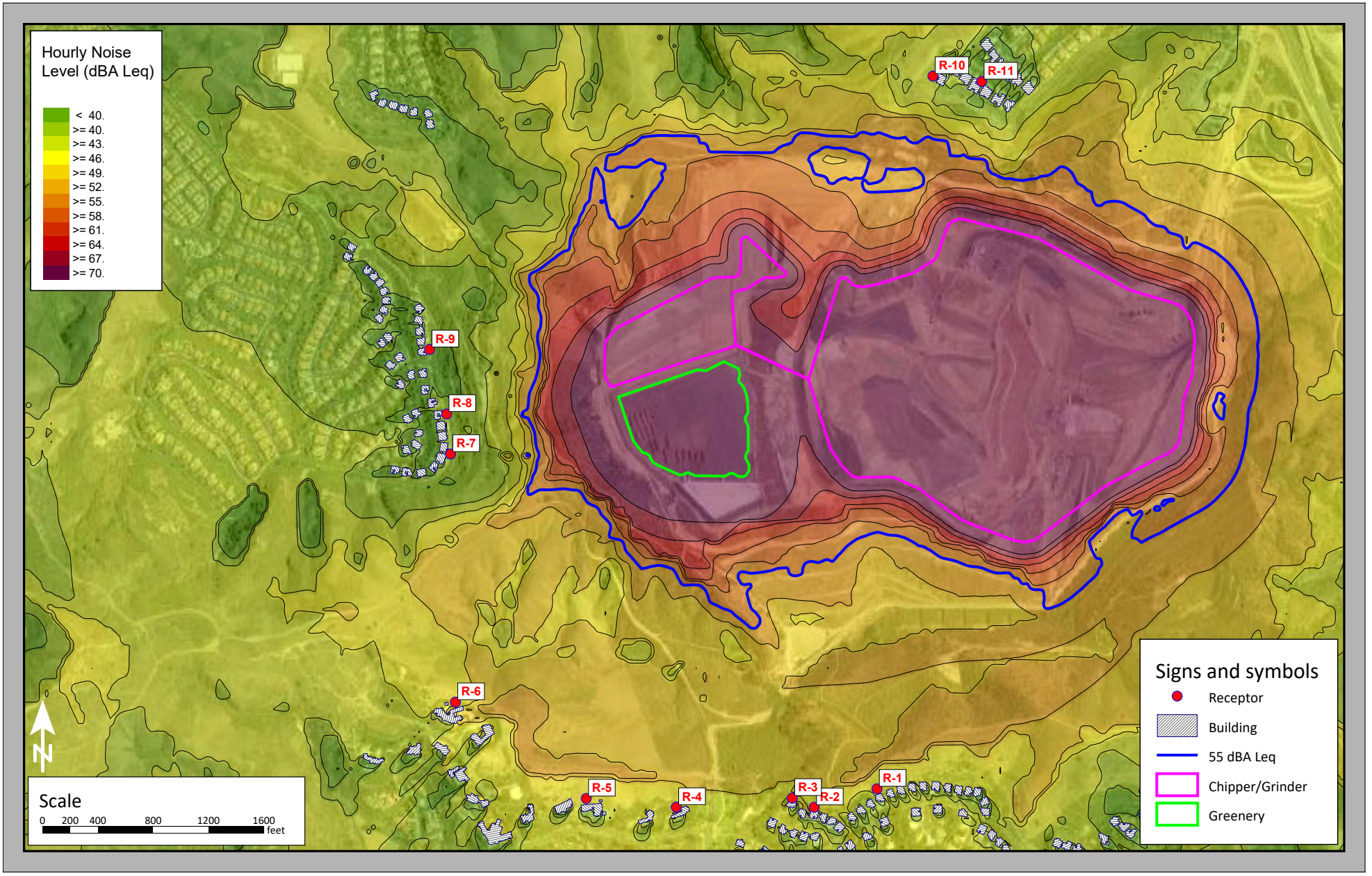
Prima Capo Greenery Updates

Project No. OCY2001.22

Project Operational Noise Levels (with Chipper/Grinder Equipment in Landfill Area) - Daytime



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