HELIX
Environmental Planning

Sweetwater Vistas Project

PDS2015-GPA-15-006; PDS2015-SPA-15-002
PDS2015-REZ-15-008; PDS2015-TM-5608
PDS2015-MUP-89-015W4; PDS2015-STP-15-016
PDS2015-ER-89-19-015I

Acoustical Site Assessment Report

February 2017

Prepared for:
County of San Diego
Planning & Development Services
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San Diego, CA 92123

Project Proponent:
Sweetwater Vistas, LLC
1620 Fifth Avenue, Suite 400
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LIST OF ACRONYMS

ADT	average daily trips
ALUCP	Airport Land Use Compatibility Plan
ANSI	American National Standards Institute
CAD	Computer Aided Design
CadnaA	Computer Aided Noise Abatement
CFR	Code of Federal Regulations
County	County of San Diego
CNEL	Community Noise Equivalent Level
dB	decibel
dBA	A-weighted decibels
dBC	C-weighted noise level
HVAC	heating, ventilating, and air conditioning
Hz	Hertz
in/sec	inches per second
kHz	kilohertz
L_{DN}	Day-Night level
L_{EQ}	equivalent sound level
LLG	Linscott, Law & Greenspan Engineers
L_{MAX}	maximum noise level
mPa	micro-Pascals
mph	miles per hour
MSCP	Multiple Species Conservation Plan
NSLU	noise-sensitive land use
OS-C	Open Space-Conservation zone
OSM	Office of Surface Mining Reclamation and Enforcement
PPV	peak particle velocity
R	receptor
RCNM	Roadway Construction Noise Model
R-U	Urban Residential

LIST OF ACRONYMS (cont.)

SPL	sound pressure level
S_{WL}	sound power level
SR	State Route
STC	Sound Transmission Class
TIA	Traffic Impact Assessment
TNM	Traffic Noise Model
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service
VR	Village Residential zone

EXECUTIVE SUMMARY

This report presents an assessment of potential construction and operational noise impacts associated with the proposed Sweetwater Vistas Project (Project). The Project consists of 52.0 acres and is located in the unincorporated area of Spring Valley in the County of San Diego (County). The Project includes the development of a new master planned community consisting of 218 multi-family residential units and approximately 27.9 acres of biological open space.

General construction activities associated with the Project attributed to the use of a breaker would cause potentially significant noise impacts to surrounding residences. These impacts would be reduced to less than significant levels if placed at least 125 feet from nearby residences. Blasting impacts would be potentially significant, but would be reduced to less than significant levels with the implementation of a Blasting Management Plan, final Project-specific analysis, and use of non-explosive chemical fracturing where appropriate. Potentially significant noise impacts may also occur from operation of construction equipment to nesting birds as listed in the Project's Biological Technical Report (HELIX Environmental Planning, Inc. [HELIX] 2016). If construction occurs during the breeding seasons for these birds, pre-construction surveys shall be conducted to determine if the species are present. If present, construction activity would be limited to ensure that noise levels are reduced to below 60 dBA or ambient.

If blasting is necessary for Project construction, potentially significant impacts to the nesting birds described above may occur. If pre-construction surveys identify these birds, blasting will be restricted to the non-nesting season for the identified birds or be completed using wholly chemical means.

Residential and commercial heating, ventilation, and air conditioning (HVAC) noise from the condensers would not exceed allowable County limits for operational sources.

Exterior noise levels from traffic noise would be potentially significant for the proposed residences in Lot 3 adjacent to Sweetwater Springs Boulevard and/or Jamacha Boulevard and for 14 proposed balconies. Mitigation is required to reduce exterior noise levels to below 65 dBA Community Noise Equivalent Level (CNEL). This would be accomplished through the installation of five-foot high sound walls along Jamacha Boulevard and Sweetwater Springs Boulevard for the exterior use areas and 5-foot high sound barriers for the balconies.

The building façade of the residences described above may be exposed to noise in excess of 60 CNEL even after the installation of the sound walls, and as traditional materials would be expected to attenuate noise by 15 CNEL, interior noise levels may exceed 45 CNEL. In accordance with standard County requirements, additional exterior to interior noise analysis would need to be conducted where exterior noise levels are expected to exceed 60 CNEL.

Traffic noise generated by the Project would not cause significant impacts to off-site noise-sensitive land uses (NSLUs).

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1.0 INTRODUCTION

1.1 Purpose of the Report

This report analyzes potential noise and vibration impacts associated with the proposed Sweetwater Vistas Project (Proposed Project or Project), which includes an evaluation of existing conditions in the Project vicinity, an assessment of potential impacts associated with Project construction, and an evaluation of Project operational impacts. The analysis of impacts and report is prepared in accordance with the County of San Diego (County) Guidelines for Determining Significance – Noise (County 2009a) and Report Format and Content Requirements – Noise (County 2009b).

1.2 Project Location

The Project consists of 52.0 acres and is located in the unincorporated area of Spring Valley in the County (see Figure 1, *Regional Location*). Approximately 43.4 acres of the Project are located at the northwest corner of Jamacha Boulevard and Sweetwater Springs Boulevard (the Western Parcel). Approximately 8.6 acres of the Project are located at the southeast corner of Jamacha Boulevard and Sweetwater Springs Boulevard, directly west of the Otay Water District offices (the Eastern Parcel). These sites are bisected by Jamacha Boulevard and are depicted in Figure 2, *Project Vicinity*.

1.3 Project Description

The applicant and former lender of this property acquired it through foreclosure on September 5, 2014. These 52.0 acres are part of the 653-acre Pointe San Diego Specific Plan and related permits initially approved August 1, 1990 and subsequently amended October 22, 2003. The previously approved permits have all expired.

The current Project includes the development of a new master planned community consisting of 218 multi-family residential units and approximately 27.9 acres of biological open space. The residential development would include 218 multi-family units on the 43.4-acre Western Parcel. The residential development would be divided into three lots as reflected in Figure 3, *Site Plan and Noise Measurement Locations*. Lots 1 and 2, which in aggregate total 143 units, are envisioned to be for sale product. Lot 3, totaling 75 units, is designed as a gated condominium community. Hansen's Creek, which bisects the Western Parcel, would be preserved. The 8.6-acre Eastern Parcel (previously approved for office development) containing high quality habitat would be placed in Biological Open Space. Earthwork is estimated to consist of 129,000 cubic yards of balanced cut and fill.

The Project will require a General Plan Amendment, Specific Plan Amendment, Rezone, Multiple Species Conservation Plan (MSCP) Boundary Line Adjustment and Tentative Map. In addition, in November 2014, the applicant made a formal request with the Department of Public Works for the vacation of the right-of-way for State Route (SR) 54 dedicated on Subdivision Map No. 12924.

The General Plan Amendment would update the Spring Valley Community Plan map and text. The proposed amendment would change the land use designation from Specific Plan to Village Residential and Open Space-Conservation and would delete language related to the "promised resort, restaurants and businesses" in the text of the Spring Valley Community Plan. The Specific Plan Amendment would update the Pointe San Diego Specific Plan to delete language related to the resort. The proposed land use designation for the Western Parcel would be Village Residential 15 (VR-15) and the proposed land use designation for the Eastern Parcel would be Open Space-Conservation (OS-C).

1.3.1 Noise Reduction Best Management Practice

The Project will implement noise attenuation techniques as needed to reduce excessive noise levels so that construction noise would be in compliance with the San Diego County Municipal Code Sections 36.408, 36.409, and 36.410. Such techniques would include, but not be limited to, the construction of temporary sound barriers or sound blankets between construction sites and nearby noise-sensitive receptors, maintaining construction equipment with manufacturer-recommended noise-reduction devices, operating all diesel equipment with closed engine doors, using electrical power to operate air compressors and similar power tools, and locating stationary noise-generating equipment as far from nearby noise-sensitive receptors as feasible.

1.4 Noise and Sound Level Descriptors and Terminology

1.4.1 Descriptors

All noise level or sound level values presented herein are expressed in terms of decibels (dB), with A-weighting (dBA) to approximate the hearing sensitivity of humans. Time-averaged noise levels are expressed by the symbol L_{EQ}, with a specified duration. The Community Noise Equivalent Level (CNEL) is a 24-hour average, where noise levels during the evening hours of 7:00 p.m. to 10:00 p.m. have an added 5 dBA weighting, and sound levels during the nighttime hours of 10:00 p.m. to 7:00 a.m. have an added 10 dBA weighting. This is similar to the Day-Night sound level (L_{DN}), which is a 24-hour average with an added 10 dBA weighting on the same nighttime hours but no added weighting on the evening hours. Sound levels expressed in CNEL are always based on dBA. These metrics are used to express noise levels for both measurement and municipal regulations, as well as for land use guidelines and enforcement of noise ordinances.

1.4.2 Terminology

Sound, Noise, and Acoustics

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. Noise is defined as loud, unexpected, or annoying sound.

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determines the

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Regional Location

SWEETWATER VISTAS

HELIX Environmental Planning

N 0 8 Miles

Figure 1

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Project Vicinity

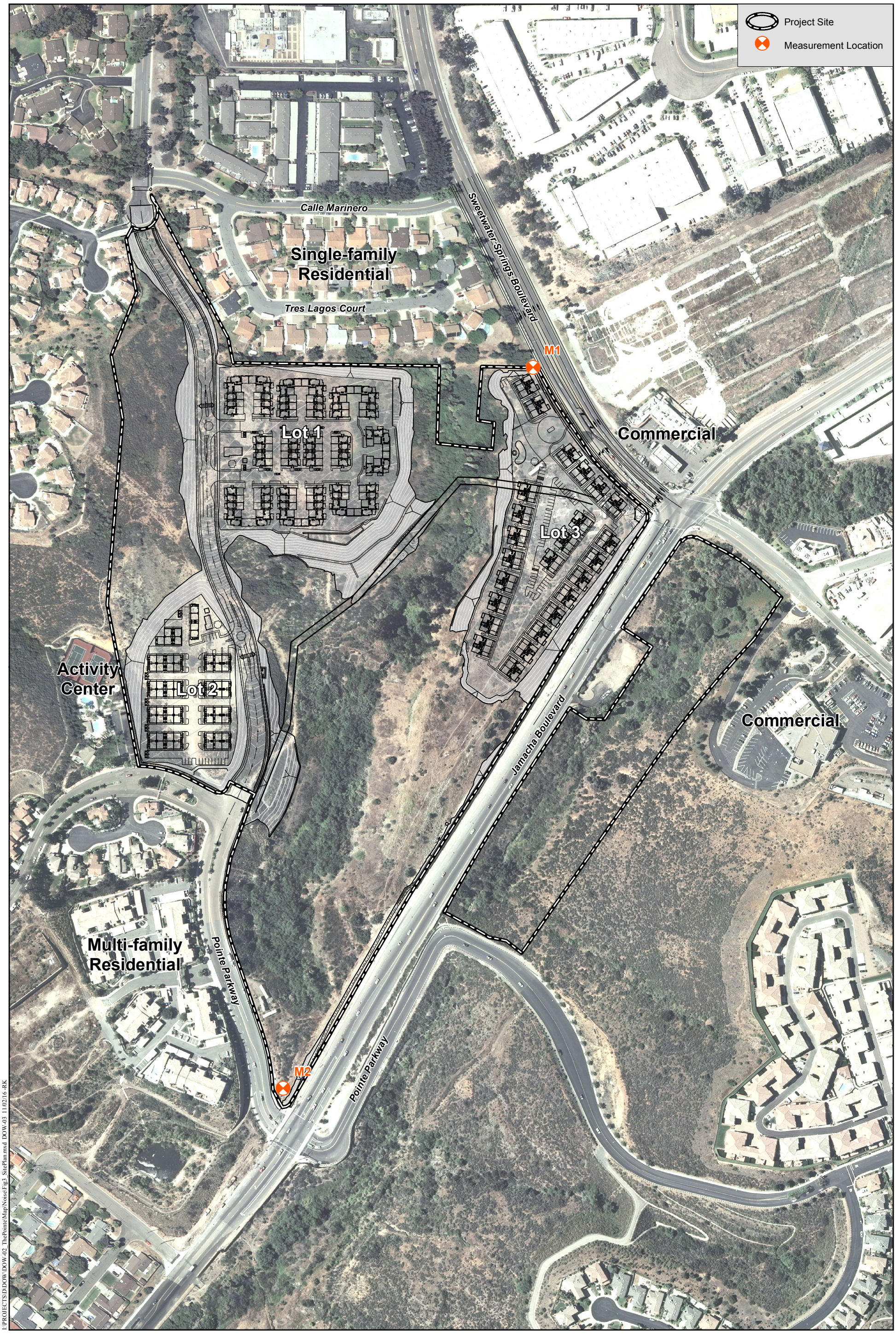
SWEETWATER VISTAS

HELIX Environmental Planning

N

0 2,000 Feet

Figure 2



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Site Plan and Noise Measurement Locations

SWEETWATER VISTAS

HELIX Environmental Planning

N 0 250 Feet

Figure 3

sound level and characteristics of the noise perceived by the receiver. The field of acoustics deals primarily with the propagation and control of sound.

Frequency

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or Hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz (kHz), or thousands of Hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

Sound Pressure Levels and Decibels

The amplitude of pressure waves generated by a sound source determines the loudness of that source. Sound pressure amplitude is measured in micro-Pascals (mPa). One mPa is approximately one hundred billionth (0.00000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to 100,000,000 mPa. Because of this wide range of values, sound is rarely expressed in terms of mPa. Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of dB. The threshold of hearing for the human ear is about 0 dB, which corresponds to 20 mPa.

Addition of Decibels

Because decibels are logarithmic units, SPL cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3-dBA increase. In other words, when two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dB higher than from one source under the same conditions. For example, if one automobile produces an SPL of 70 dBA when it passes an observer, two cars passing simultaneously would not produce 140 dBA—rather, they would combine to produce 73 dBA. Under the decibel scale, three sources of equal loudness together produce a sound level 5 dBA louder than one source.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear is able to discern 1-dBA changes in sound levels, when exposed to steady, single-frequency ("pure-tone") signals in the mid-frequency (1,000 Hz–8,000 Hz) range. In typical noisy environments, changes in noise of 1 to 2 dBA are generally not perceptible. It is widely accepted, however, that people begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5-dBA increase is generally perceived as a distinctly noticeable increase, and a 10-dBA increase is generally perceived as a doubling of loudness.

No known studies have directly correlated the ability of a healthy human ear to discern specific levels of change in traffic noise over a 24-hour period. Many ordinances, however, specify a change of 3 CNEL as the significant impact threshold. This is based on the concept of a doubling in noise energy resulting in a 3-dBA change in noise, which is the amount of change in noise necessary for the increase to be perceptible to the average healthy human ear.

1.5 Noise-Sensitive Land Uses

Noise-sensitive land uses (NSLUs) are land uses that may be subject to stress and/or interference from excessive noise, including residences, hospitals, schools, hotels, resorts, libraries, sensitive wildlife habitat, or similar facilities where quiet is an important attribute of the environment. Noise receptors are individual locations that may be affected by noise.

NSLUs in the Project vicinity include sensitive wildlife habitat adjacent to and within the Project boundaries; single-family homes located to the north, west, and southwest of the site; multi-family residences located directly south of the site across Pointe Parkway; and an activity center (with swimming pools and tennis courts) adjacent to Lot 2.

1.6 Regulatory Framework

Code of Federal Regulations (30 CFR 816.61-816.68)

Various aspects of blasting, including flyrock and airblast, are regulated by the Code of Federal Regulations (30 CFR 816.61-816.68). Section 816.67(b) specifies maximum levels for airblast; Section 816.67(c) specifies allowable distances for flyrock.

California Noise Control Act

This section of the California Health and Safety Code finds that excessive noise is a serious hazard to the public health and welfare and that exposure to certain levels of noise can result in physiological, psychological, and economic damage. It also finds that there is a continuous and increasing bombardment of noise in the urban, suburban, and rural areas. The California Noise Control Act declares that the State of California has a responsibility to protect the health and welfare of its citizens by the control, prevention, and abatement of noise. It is the policy of the State to provide an environment for all Californians free from noise that jeopardizes their health or welfare.

California Noise Insulation Standards [California's Title 24 Noise Standards. Cal. Adm. Code Title 24, Chap. 2-35]

In 1974, the California Commission on Housing and Community Development adopted noise insulation standards for multi-family residential buildings (Title 24, Part 2, California Code of Regulations). Title 24 establishes standards for interior room noise (attributable to outside noise sources). The regulations also specify that acoustical studies must be prepared whenever a residential building or structure is proposed to be located near an existing or adopted freeway route, expressway, parkway, major street, thoroughfare, rail line, rapid transit line, or industrial noise source, and where such noise source or sources create an exterior CNEL (or L_{DN}) of 60 dBA or greater. Such acoustical analysis must demonstrate that the residence has been designed to limit intruding noise to an interior CNEL (or L_{DN}) of at least 45 dBA.

San Diego County General Plan, Noise Element

The Noise Element of the County General Plan includes guidelines for noise compatibility (Tables N-1 and N-2 from the County General Plan), as detailed below in Table 1-1, *San Diego County Noise Compatibility Guidelines*, and noise standards, as detailed below in Table 1-2, *San Diego County General Plan Noise Standards.*

Table 1-1
SAN DIEGO COUNTY NOISE COMPATIBILITY GUIDELINES

Land Use Category		Exterior Noise Level (CNEL)					
		55	60	65	70	75	80
A	Residential—single family residences, mobile homes, senior housing, convalescent homes						
B	Residential—multi-family residences, mixed-use (commercial/residential)						
C	Transient lodging—motels, hotels, resorts						
D[(1)]	Schools, churches, hospitals, nursing homes, child care facilities						
E[(1)]	Passive recreational parks, nature preserves, contemplative spaces, cemeteries						
F[(1)]	Active parks, golf courses, athletic fields, outdoor spectator sports, water recreation						
G[(1)]	Office\professional, government, medical\dental, commercial, retail, laboratories						
H[(1)]	Industrial, manufacturing, utilities, agriculture, mining, stables, ranching, warehouse, maintenance/repair						
	ACCEPTABLE—Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal construction, without any special noise insulation requirements.						
	CONDITIONALLY ACCEPTABLE—New construction or development should be undertaken only after a detailed noise analysis is conducted to determine if noise reduction measures are necessary to achieve acceptable levels for land use. Criteria for determining exterior and interior noise levels are listed in Table 3, Noise Standards. If a project cannot mitigate noise to a level deemed Acceptable, the appropriate County decision-maker must determine that mitigation has been provided to the greatest extent practicable or that extraordinary circumstances exist.						
	UNACCEPTABLE—New construction or development shall not be undertaken.						

Source: County 2011

(1) Denotes facilities used for part of the day; therefore, an hourly standard would be used rather than CNEL.

(2) For projects located within an Airport Influence Area of an adopted Airport Land Use Compatibility Plan (ALUCP), additional Noise Compatibility Criteria restrictions may apply as specified in the ALUCP.

Table 1-2 COUNTY OF SAN DIEGO GENERAL PLAN NOISE STANDARDS	
1.	The exterior noise level (as defined in Item 5) standard for Category A shall be 60 CNEL, and the interior noise level standard for indoor habitable rooms shall be 45 CNEL.
2.	The exterior noise level standard for Categories B and C shall be 65 CNEL, and the interior noise level standard for indoor habitable rooms shall be 45 CNEL.
3.	The exterior noise level standard for Categories D and G shall be 65 CNEL and the interior noise level standard shall be 50 dBA L_{EQ} (one hour average).
4.	For single-family detached dwelling units, "exterior noise level" is defined as the noise level measured at an outdoor living area which adjoins and is on the same lot as the dwelling, and which contains at least the following minimum net lot area: (i) for lots less than 4,000 square feet in area, the exterior area shall include 400 square feet, (ii) for lots between 4,000 square feet to 10 acres in area, the exterior area shall include 10 percent of the lot area; (iii) for lots over 10 acres in area, the exterior area shall include 1 acre.
5.	For all other residential land uses, "exterior noise level" is defined as noise measured at exterior areas that are provided for private or group usable open space purposes. "Private Usable Open Space" is defined as usable open space intended for use of occupants of one dwelling unit, normally including yards, decks, and balconies. When the noise limit for Private Usable Open Space cannot be met, then a Group Usable Open Space that meets the exterior noise level standard shall be provided. "Group Usable Open Space" is defined as usable open space intended for common use by occupants of a development, either privately owned and maintained or dedicated to a public agency, normally including swimming pools, recreation courts, patios, open landscaped areas, and greenbelts with pedestrian walkways and equestrian and bicycle trails, but not including off-street parking and loading areas or driveways.
6.	For non-residential noise sensitive land uses, exterior noise level is defined as noise measured at the exterior area provided for public use.
7.	For noise sensitive land uses where people normally do not sleep at night, the exterior and interior noise standard may be measured using either CNEL or the one-hour average noise level determined at the loudest hour during the period when the facility is normally occupied.
8.	The exterior noise standard does not apply for land uses where no exterior use area is proposed or necessary, such as a library.
9.	For Categories E and F the exterior noise level standard shall not exceed the limit defined as "Acceptable" in Table N-1 or an equivalent one-hour noise standard.

Source: County 2011

County of San Diego Municipal Code - Noise Ordinance

Sections 36.401 through 36.423 of the County of San Diego Municipal Code discuss further County noise requirements. The purpose of the Noise Ordinance is to regulate noise in the unincorporated area of the County to promote the public health, comfort and convenience of the County's inhabitants and its visitors.

The Noise Ordinance sets limits pertaining to the generation of exterior noise. It is unlawful for any person to cause or allow the creation of any noise to the extent that the one-hour average sound level at any point on or beyond the boundaries of the property will exceed the applicable limits in Table 1-3, *County of San Diego Municipal Code Exterior Sound Level Limits*.

Table 1-3
COUNTY OF SAN DIEGO MUNICIPAL CODE
EXTERIOR SOUND LEVEL LIMITS

Zone	Time	One-Hour Average Sound Level Limits (dBA)
(1) R-S, R-D, R-R, R-MH, A-70, A-72, S-80, S-81, S-87, S-90, S-92 and R-V and R-U with a density of less than 11 dwelling units per acre.	7:00 a.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	50 45
(2) R-RO, R-C, R-M, S-86, V5 and R-V and R-U with a density of 11 or more dwelling units per acre.	7:00 a.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	55 50
(3) S-94, V4 and all other commercial zones.	7:00 a.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	60 55
(4) V1, V2	7:00 a.m. to 7:00 p.m.	60
V1, V2	7:00 p.m. to 10:00 p.m.	55
V1	10:00 p.m. to 7:00 a.m.	55
V2	10:00 p.m. to 7:00 a.m.	50
V3	7:00 a.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	70 65
(5) M-50, M-52 and M-54	Anytime	70
(6) S-82, M-56 and M-58	Anytime	75
(7) S-88 (see subsection (c) below)	-	-

Source: County of San Diego Municipal Code Section 36.404.
Zoning Code Definitions: R-S = Single-Family Residential; R-D = Duplex Residential; R-R = Rural Residential; R-MH = Mobile home Residential; A-70 = Limited Agriculture; A-72 = General Agriculture; S-80 = Open Space; S-90 = Holding Area; S-92 = General Rural; S-94 = Transportation and Utility Corridor; R-V = Variable-Family Residential; R-RO = ; R-C = Residential-Commercial; R-M = Multi-Family Residential ; S-86 = Parking; R-U = Urban Residential; V1, V2, V3, V4, and V5 = Village Designations; M-50 = Basic Industrial; M-52 = Limited Industrial; M-54 = General Impact Industrial; S-82 = Extractive Use; M-56 = Mixed Industrial; M-58 = High-Impact Industrial; S-88 = Specific Plan

(a) If the measured ambient level exceeds the applicable limit noted above, the allowable one-hour average sound level shall be the ambient noise level, plus 3 dB. The ambient noise level shall be measured when the alleged noise violation source is not operating.

(b) The sound level limit at a location on a boundary between two zones is the arithmetic mean of the respective limits for the two zones; provided however, that the one-hour average sound level limit applicable to extractive industries, including but not limited to borrow pits and mines, shall be 75 dB at the property line regardless of the zone which the extractive industry is actually located.

(c) S-88 zones are Specific Planning Areas that allow for different uses. The sound level limits in Table 1-3 above that apply in an S-88 zone depend on the use being made of the property. The limits in Table 1-3, subsection (1) apply to property with a residential, agricultural, or civic use. The limits in subsection (5) apply to property with an industrial use that would only be allowed in an M-50, M-52, or M-54 zone. The limits in

subsection (6) apply to all property with an extractive use or a use that would only be allowed in an M-56 or M-58 zone.

(d) A fixed-location public utility distribution or transmission facility located on or adjacent to a property line shall be subject to the sound level limits of this section, measured at or beyond six feet from the boundary of the easement upon which the facility is located.

Section 36.408

Except for emergency work, it shall be unlawful for any person to operate or cause to be operated, construction equipment:

a. Between the hours of 7:00 p.m. and 7:00 a.m.

b. On a Sunday or a holiday. For the purposes of this section a holiday means January 1, the last Monday in May, July 4, the first Monday in September, December 25, and any day appointed by the President as a special national holiday or the Governor of the State as a special State holiday. A person may, however, operate construction equipment on a Sunday or holiday between the hours of 10:00 a.m. and 5:00 p.m. at the person's residence or for the purpose of constructing a residence for himself or herself, provided that the operation of construction equipment is not carried out for financial consideration or other consideration of any kind and does not violate the limitations in Sections 36.409 and 36.410**.**

Section 36.409, Construction Noise

Except for emergency work, it shall be unlawful for any person to operate construction equipment or cause construction equipment to be operated, that exceeds an average sound level of 75 dB for an eight-hour period, between 7:00 a.m. and 7:00 p.m., when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is being received.

Section 36.410, Impulsive Noise

Section 36.410 provides additional limitation on construction equipment beyond Section 36.404 pertaining to impulsive noise. Except for emergency work or work on a public road project, no person shall produce or cause to be produced an impulsive noise that exceeds the maximum sound level shown in Table 1-4, *County of San Diego Maximum Sound Levels (Impulsive)*, when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is received, for 25 percent of the minutes in the measurement period.

Table 1-4 COUNTY OF SAN DIEGO MAXIMUM SOUND LEVELS (IMPULSIVE)	
Occupied Property Use	**Decibels (dBA) L_{MAX}**
Residential, village zoning or civic use	82
Agricultural, commercial or industrial use	85

Source: County of San Diego Municipal Code Section 36.410

The minimum measurement period for any measurements is one hour. During the measurement period, a measurement must be conducted every minute from a fixed location on an occupied property. The measurements must measure the maximum sound level during each minute of the measurement period. If the sound level caused by construction equipment or the producer of the impulsive noise exceeds the maximum sound level for any portion of any minute, it will be deemed that the maximum sound level was exceeded during that minute.

County Consolidated Fire Code (Section 96.1.5601.2)

Blasting activities are regulated by the County Consolidated Fire Code (County 2014) within Sections 96.1.5601.2.1 through 5601.2.10. A blasting permit must be issued by the Sheriff prior to commencement of any blasting operations. The County code specifies hours when blasting may be performed, requirements of noticing for surrounding property owners, and the completion of pre- and post-blasting inspection reports.

County of San Diego Guidelines for Determining Significance for Biological Resources

Some studies, such as that completed by the Bioacoustics Research Team (U.C. Davis 1997), have concluded that 60 dBA is a single, simple criterion to use as a starting point for passerine impacts until more specific research is done, as noted in Significance Guideline 4.1.H in the County's Guidelines for Determining Significance and Report Format and Content Requirements – Biological Resources (County 2010). Associated guidelines produced by the U.S. Fish and Wildlife Service (USFWS) require that noise be limited to a level not to exceed an hourly limit of 60 dBA L_{EQ} or the average ambient noise level, whichever is greater, at the edge of habitat during the breeding season.

2.0 ENVIRONMENTAL SETTING

2.1 Surrounding Land Uses

Single family homes are located to the north, west, and southwest of the site, and multi-family residences are located south of the site across Pointe Parkway. A small activity center is located adjacent to the west of Lot 2. Undeveloped land is located south and southeast of the site across Jamacha Boulevard. A gas station and small commercial development is located across Sweetwater Springs Boulevard directly to the east of the site. A former Evergreen Nursery site is located adjacent to the gas station east of the Project site. This land is currently vacant and all buildings have been demolished. Additional surrounding land uses (not immediately adjacent)

include industrial uses, a fire station, a shopping center, and single-family residences on a hillside overlooking the Project site.

2.2 Existing Noise Environment

The primary noise source near the Project site is the moderate traffic noise on Jamacha Boulevard and Sweetwater Springs Boulevard. The Project is not located near any active airports, with the nearest being Gillespie Field, located seven miles to the north.

2.2.1 Ambient Noise Survey

Two locations were measured for the ambient noise survey: one near the Project entrance off Sweetwater Springs Boulevard, and one near the southern end of the Project site off Jamacha Boulevard (see Appendix A, *On-site Noise Measurement Sheets*, for survey notes). Traffic volumes for both streets were recorded for automobiles, medium-size trucks (double-tires/ two axles), and heavy trucks (three or more axles). The measured noise levels and related weather conditions are shown in Table 2-1, *Noise Measurement Results*. Traffic counts for the timed measurement and the one-hour equivalent volume are shown in Table 2-2, *Recorded Traffic Volume and Vehicle Mix.*

Table 2-1
NOISE MEASUREMENT RESULTS

Measurement 1	
Date:	June 22, 2015
Conditions:	~7-8 mph breeze, temperature of approximately 86°F with 72 percent humidity.
Time:	3:10 p.m. – 3:26 p.m.
Location:	2641 Sweetwater Springs Boulevard
Measured Noise Level:	68.0 dBA L_{EQ}
Notes:	Primary noise source is moderate to light traffic on Sweetwater Springs Boulevard.
Measurement 2	
Date:	June 25, 2015
Conditions:	~7-8 mph breeze, temperature of approximately 81°F with 55 percent humidity.
Time:	10:22 a.m. – 10:37 a.m.
Location:	10522 Jamacha Boulevard
Measured Noise Level:	66.7 dBA L_{EQ}
Notes:	Primary noise source is moderate to light traffic on Jamacha Boulevard.

Table 2-2 RECORDED TRAFFIC VOLUME AND VEHICLE MIX				
Roadway	**Traffic**	**Autos**	**MT[1]**	**HT[2]**
Sweetwater Springs Boulevard	15-minute Count	202	11	1
	One-hour Equivalent	808	44	4
	Percent	**94%**	**5%**	**1%**
Jamacha Boulevard	15-minute Count	250	7	2
	One-hour Equivalent	1000	28	8
	Percent	**96%**	**3%**	**1%**

[1] Medium Trucks (double tires/two axles)
[2] Heavy Trucks (three or more axles)

3.0 ANALYSIS METHODOLOGY AND ASSUMPTIONS

3.1 Methodology

3.1.1 Ambient Noise Survey

The following equipment was used to measure existing noise levels at the Project site:

- Larson Davis System LxT Integrating Sound Level Meter
- Larson Davis Model CA250 Calibrator
- Windscreen and tripod for the sound level meter
- Digital camera

The sound level meter was field-calibrated immediately prior to the noise measurements to ensure accuracy. All sound level measurements conducted and presented in this report were made with a sound level meter that conforms to the American National Standards Institute (ANSI) specifications for sound level meters (ANSI SI.4-1983 R2006). All instruments were maintained with National Institute of Standards and Technology traceable calibration per the manufacturers' standards.

3.1.2 Noise Modeling Software

Modeling of the exterior noise environment for this report was accomplished using two computer noise models: Computer Aided Noise Abatement (CadnaA) version 4.5 and Traffic Noise Model (TNM) version 2.5. CadnaA is a model-based computer program developed by *DataKustik* for predicting noise impacts in a wide variety of conditions. CadnaA assists in the calculation, presentation, assessment, and mitigation of noise exposure. It allows for the input of project-related information, such as noise source data, barriers, structures, and topography to create a detailed CadnaA model, and uses the most up-to-date calculation standards to predict outdoor noise impacts. CadnaA traffic noise prediction is based on the data and methodology used in the TNM. The TNM was released in February 2004 by the U.S. Department of Transportation (USDOT), and calculates the daytime average hourly L_{EQ} from three-dimensional model inputs and traffic data (Caltrans 2004). The TNM used in this analysis was developed from Computer Aided Design (CAD) plans provided by the Project applicant. Input variables included road

alignment, elevation, lane configuration, area topography, existing and planned noise control features, projected traffic volumes, estimated truck composition percentages, and vehicle speeds.

The one-hour L_{EQ} noise level is calculated utilizing peak-hour traffic; peak-hour traffic volumes can be estimated based on the assumption that 10 percent of the average daily traffic would occur during a peak hour. The model-calculated one-hour L_{EQ} noise output is the equivalent to the CNEL (Caltrans Technical Noise Supplement, November 2009).

Project construction noise was analyzed using the Roadway Construction Noise Model (RCNM; USDOT 2008), which utilizes estimates of sound levels from standard construction equipment.

3.2 Assumptions

3.2.1 Construction

3.2.1.1 *General Equipment and Schedule*

Construction would require heavy equipment during mass grading, utility installations, building construction, and paving. Refer to Table 3-1, *Construction Equipment Assumptions*, for more specific information regarding construction equipment. Construction is expected to begin in the last quarter of 2016. Refer to Table 3-2, *Anticipated Construction Schedule*, for more specific information regarding the schedule of construction activities.

Table 3-1
CONSTRUCTION EQUIPMENT ASSUMPTIONS

Construction Phase	Equipment	Number
Site Preparation	Rubber Tired Dozers	1
	Tractors/Loaders/Backhoes	1
Grading Lots 1 and 2	Air Compressors	4
	Graders	1
	Off-Highway Trucks	2
	Plate Compactors	1
	Rubber Tired Dozers	2
	Scrapers	4
	Tractors/Loaders/Backhoes	1
	Excavators	1
Grading Lot 3	Graders	1
	Off-Highway Trucks	8
	Plate Compactors	1
	Rubber Tired Dozers	2
	Scrapers	4
	Tractors/Loaders/Backhoes	1
	Excavators	1
Underground Utilities	Excavators	1
	Tractors/Loaders/Backhoes	1

Table 3-1 (cont.) CONSTRUCTION EQUIPMENT ASSUMPTIONS		
Construction Phase	**Equipment**	**Number**
Paving	Pavers	1
	Paving Equipment	1
	Rollers	1
	Tractors/Loaders/Backhoes	1
Lot 1 Construction	Cranes	1
	Forklifts	1
	Generator Sets	1
	Tractors/Loaders/Backhoes	1
	Welders	3
Lot 2 Construction	Cranes	1
	Forklifts	2
	Tractors/Loaders/Backhoes	2
Lot 3 Construction	Cranes	1
	Forklifts	3
	Generator Sets	1
	Tractors/Loaders/Backhoes	3
	Welders	1
Architectural Coating	Air Compressors	1

Table 3-2 ANTICIPATED CONSTRUCTION SCHEDULE			
Construction Activity	**Construction Period**		
	Start	**End**	**Number of Working Days**
Site Preparation	08/01/2018	08/07/2018	5
Grading Lots 1 and 2	08/08/2018	09/26/2018	36
Grading Lot 3	08/08/2018	08/21/2018	10
Underground Utilities	10/01/2018	11/09/2018	30
Paving	11/10/2018	11/14/2018	3
Lot 1 Construction[a]	11/15/2018	05/14/2021	520
Lot 2 Construction[b]	08/15/2019	12/14/2021	523
Lot 3 Construction	11/15/2018	03/21/2021	522
Architectural Coating[d]	07/15/2019	12/27/2021	81

[a] Lot 1 Construction will occur over 3 sub-phases, each 8 months in duration with 3 months downtime between phases.

[b] Lot 2 Construction will occur over 3 sub-phases, each 8 months in duration with 2 months downtime between phases.

[c] Lot 3 Construction will occur over 3 sub-phases, each 8 months in duration with 2 months downtime between phases.

[d] Architectural Coating will occur in sub-phases, each lasting 9 working days, with each sub-phase immediately following the end of a construction sub-phase.

Blasting Assumptions

Blasting may be required at the site during initial grading activity in Lot 2. Blasting operations would be conducted through the use of drilling and blasting to fracture rocks. Blasting operations would be conducted by a licensed blasting contractor, in strict compliance with pertinent federal, state, and county requirements. All blasting materials would be transported to the site for each blasting sequence and no explosives would be stored at the site. A single drill rig would be used to drill a pattern of bore holes each with a 3- to 6-inch diameter. A contractor then loads the holes with carefully metered explosives. The "shot" is timed to detonate each of the holes in sequence. This minimizes the ground vibration and noise of the blast, while maximizing fracture of the rock. Some dust is created as a result of the blast. However, the dust would be fully dissipated within 30 to 60 seconds following the shot. The rock would be broken up to sizes less than 18 inches in diameter.

Following blasting, the rock resource would be fractured and can be moved with conventional earthmoving equipment. A front-end loader would be used to spread the fractured rocks around the site for balanced cut/fill grading.

Blasting typically includes three components that can result in impacts: flyrock, vibration, and airblast:

Flyrock: Flyrock is debris (smaller and potentially larger chunks of rock) ejected from the blast. Outside the immediate area of the blast itself, flyrock is potentially the most dangerous portion of blasting; it has the ability to damage structures and maim or kill humans or other animals at great distances from the blast.

Vibration: Both air and ground vibrations create waves that disturb the material in which they travel. When these waves encounter a structure, they cause it to shake and may cause structural damage. Ground vibrations enter the house through the foundation.

Airblast: Airblast is a pressure wave that creates a push (positive pressure) and pull (negative pressure) effect; it may be audible (noise) or inaudible (concussion). A blast occurring outside of a residence may be heard inside because of the audible noise; however, noise has little impact on the structure. The concussion wave causes the structure to shake and rattle and can break windows at higher pressure levels.

3.2.2 Operation

The known or anticipated Project site operational noise sources include residential or commercial heating, ventilation, and air conditioning (HVAC) systems and vehicular traffic.

3.2.2.1 *Residential Air Conditioners*

Specific planning data for the future HVAC systems is not available at this stage of Project design; however, analysis using a typical to larger-sized residential condenser mounted on ground level pads provides a reasonable basis for analysis. The unit used in this analysis is a Carrier 38HDR060 split system condenser (see Appendix B, *Carrier 38HDR060 Split System*

Condenser). The manufacturer's noise data is provided below in Table 3-3, *Carrier HDR060 Condenser Noise.*

Table 3-3
CARRIER HDR060 CONDENSER NOISE

Noise Levels in Decibels[1] (dB) Measured at Octave Frequencies							Overall Noise Level in A-weighted Scale (dBA)[1]
125 Hz	250 Hz	500 Hz	1 KHz	2 KHz	4 KHz	8 KHz	
63.0	61.5	64.0	66.5	66.0	64.5	55.5	72.0

[1] Sound Power Levels (S_{WL})
KHz = kilohertz

3.2.2.2 *Vehicular Traffic*

Transportation noise near the Project is primarily from vehicular traffic. Anticipated future traffic noise levels are based on forecasted traffic volumes provided in the Traffic Impact Assessment (TIA) prepared by Linscott, Law, and Greenspan (LLG 2016).

Table 3-4, *Existing and Future Traffic Volumes*, summarizes the forecasted average daily trips (ADT) data included in the TIA for the existing and future traffic conditions, which includes existing, existing plus Project, and existing plus Project plus cumulative growth.

Table 3-4
EXISTING AND FUTURE TRAFFIC VOLUMES

Roadway Segment	ADT			
	Existing	Existing + Project	Existing + Cumulative	Existing + Cumulative + Project
Jamacha Boulevard				
San Miguel St to Whitestone Road	17,056	17,319	19,461	19,724
Whitestone to Pointe Parkway	20,434	20,723	22,839	23,188
Pointe Parkway to Sweetwater Springs Blvd	24,511	24,700	26,916	27,105
Sweetwater Springs Blvd to Calavo Drive	15,225	15,417	18,240	18,432
Calavo Drive to Campo Road	17,428	17,603	20,382	20,557
Sweetwater Springs Boulevard				
SR 94 to Austin Drive	20,917	22,085	22,427	23,595
Austin Drive to Jamacha Boulevard	15,416	14,499	16,948	16,031

Sources: LLG 2016

TNM software was used to calculate the distances to noise contour lines for all three scenarios (refer to Section 4.4.2).

During the site visit, the recorded vehicle composition along Sweetwater Springs Boulevard included 94 percent autos, 5 percent medium trucks, and 1 percent heavy trucks and the composition along Jamacha Boulevard included 96 percent autos, 3 percent medium trucks, and 1 percent heavy trucks (see Table 2-2). These percentages were utilized for vehicle composition

for modeling the existing and future conditions in the vicinity of the Project. In addition, modeling was based upon the posted speed limits of 50 miles per hour (mph) for Jamacha Boulevard and 45 mph for Sweetwater Springs Boulevard.

4.0 IMPACTS

4.1 Guidelines for the Determination of Significance

The following thresholds are based on the County of San Diego Guidelines for Determining Significance - Noise (County 2009a), as applicable to the Project.

A significant noise impact would occur if the Project would:

1. Generate construction noise that exceeds the standards listed in the San Diego County Code, Section 36.409, Sound Level Limitations on Construction Equipment (8-hour average of 75 dBA).

2. Generate construction noise that exceeds 60 dBA L_{EQ} or the average ambient noise level, whichever is greater, at the edge of sensitive biological habitat during the breeding season.

3. Generate impulsive noise that exceeds the standards listed in the San Diego County Code, Section 36.410, Sound Level Limitations on Impulsive Noise.

4. Subject residences to ground-borne vibration that exceeds the following limits:

    - Isolated events (e.g., blasting) shall not exceed 1 inch per second (in./sec) peak particle velocity (PPV);

    - Non-transportation vibration sources such as impact pile drivers or hydraulic breakers shall not exceed 0.1 in./sec PPV;

    - Other construction sources shall not exceed the "severe" criteria, as specified by Caltrans (2013), for residences of 0.4 in/sec PPV.

5. Expose exterior on- or off-site, existing or reasonably foreseeable future, NSLUs to noise (including road noise) in excess of 60 CNEL for single-family residential uses, 65 CNEL for multi-family residential uses, or an increase of 10 CNEL or more over existing noise levels. If existing conditions approach or exceed County standards, a direct impact to off-site uses would occur if the project more than doubles (increases by more than 3 dBA CNEL) the existing noise level.

6. Generate noise that exceeds the noise limits in the San Diego County Code, Section 36.404, General Sound Level Limits, at the property line of the property on which the noise is produced or at any location on the property that is receiving the noise.

- For single-family residential uses the exterior noise limit is 50 dBA from 7:00 a.m. to 10:00 p.m. and 45 dBA from 10:00 p.m. to 7:00 a.m.

- For multi-family units (more than 11 dwelling units per acre) the exterior noise limit is 55 dBA from 7:00 a.m. to 10:00 p.m. and 50 dBA from 10:00 p.m. to 7:00 a.m.

7. Expose interior on- or off-site, existing or reasonably foreseeable future, NSLUs to noise in excess of 45 CNEL.

8. Considerably contribute to a cumulative scenario that would result in the exposure of any on- or off-site, existing or reasonably foreseeable future NSLU, to:

    - An increase of 10 dBA (CNEL) over pre-existing noise levels resulting in a combined exterior noise level of 60 dBA CNEL or greater,

    - An increase of 3 dBA CNEL in Existing + Project + Cumulative conditions if that total is above 60 dBA CNEL, or

    - Interior noise in excess of 45 dBA CNEL.

    A "cumulatively considerable" project contribution to an identified significant cumulative noise impact would occur if the project contributes more than a 1 dBA increase.

4.2 Construction Noise and Vibration Impacts

Construction of the Project would generate elevated noise levels that may disrupt nearby noise sensitive receptors, including nearby residents, the activity center, and sensitive biological habitat. The magnitude of the impact would depend on the type of construction activity, equipment, duration of each construction phase, distance between the noise source and receiver, and any intervening structures.

Construction noise impact analysis includes hard rock handling, which is typically significantly louder than other activities and has the greatest potential to create impacts to off-site NSLUs. For hard rock handling, the Project would require material excavation and/or fill. Blasting may be performed to assist with grading given the underlying geology of portions of Lot 2. The necessity and extent of blasting would not be known until surface clearing is completed.

4.2.1 Hard Rock Handling

Hard rock handling involves the ripping of materials, the drilling of non-rippable materials, and the breaking of oversize materials typically using a dozer, excavator, and breaker, with an off-highway truck to haul the materials. Table 4-1, *Construction Equipment Noise Levels*, provides the 50-foot distance noise level for a dozer, excavator, breaker, and off-highway truck.

Table 4-1 CONSTRUCTION EQUIPMENT NOISE LEVELS			
Unit	**Percent Operating Time**	**dBA L_{EQ} (1-hour) @ 50 feet**	**L_{MAX} @ 50 feet**
Dozer	40	77.7	81.7
Excavator	40	81.0	80.7
Breaker	10	80.0	90.0
Off-highway Truck	40	72.5	76.5

Source: RCNM

A dozer and an excavator may be working on the site simultaneously, but would not be working in close proximity to one another at a given time due to the nature of their respective operations. Therefore, a dozer with an off-highway truck and an excavator with an off-highway truck were analyzed for construction noise impacts in isolation, using RCNM to determine the worst-case construction noise levels at nearby residential receptors.

It was assumed that a dozer and an off-highway truck, and an excavator and an off-highway truck, working on proposed grading areas would be in operation for 4 hours out of an 8-hour construction day, and that the equipment would be in operation for 40 percent of a typical hour. For modeling purposes, these pieces of equipment were assumed to operate at 100 feet from the nearest NSLU boundary lines. Over the course of a day, a dozer or excavator may be closer or farther than 100 feet from the nearest residence; however, a reasonably conservative average is 100 feet. The nearest residential boundary lines to the proposed grading areas are adjacent to the northern portion of the Project site (Lot 1). Refer to Figure 3 for surrounding land uses.

Based on these assumptions, the highest impact level for a dozer and an off-highway truck at the nearest NSLU is 69.8 dBA L_{EQ} (8 hour) and an excavator and an off-highway truck is 72.6 dBA L_{EQ} (8 hour) (see Appendix C, *Construction Noise Modeling Outputs*). Therefore, construction noise from these pieces of equipment were modeled to be below the County threshold of 75.0 dBA L_{EQ}, and impacts from operation of a dozer or excavator with an off-highway truck would be less than significant.

A hydraulically operated impact hammer attached to a tracked excavator is commonly called a breaker. These units are used in site preparation to reduce large granitic materials to a size where they can either be transported off site, buried on site for fill, or used as rip rap or landscaping materials. If blasting is to occur (see below), leftover boulders may be large enough for a breaker to be used at the Project site. Based upon potential blasting areas, a breaker would be expected to be operated within 250 feet of the nearest NSLU (the activity center adjacent to Lot 2), though this may change depending on subsurface conditions found during construction.

Breakers create an impulsive noise that is regulated by the County's 75 dBA 8-hour average limit and the maximum impulsive noise level limit of 82 dBA L_{MAX}. A breaker generates a one-hour L_{EQ} of 80 dBA at a distance of 50 feet, and a maximum noise level of 90.0 dBA L_{MAX} at a distance of 50 feet. Assuming a noise attenuation rate of 6 dBA per doubling of distance, noise levels from the breaker would reduce to 75 dBA L_{EQ} at a distance of 90 feet. The maximum noise level would be below 82 dBA L_{MAX} at 125 feet. Therefore, construction noise from a breaker would be below the County thresholds of 75 dBA L_{EQ} and 82 dBA L_{MAX} at the

expected distance of 250 feet, but impacts would be significant if placed within 125 feet of nearby NSLUs (**Impact Noi-1**). Implementation of measure M-Noi-1 below would ensure that potential impacts are reduced to a less than significant level.

4.2.1.1 *Mitigation*

M-Noi-1 **Breaker Location:** Hydraulically operated impact hammer construction equipment, commonly known as a breaker, shall be located at least 125 feet from occupied residential property lines.

4.2.2 Blasting

A full blasting analysis cannot be done until after the site is cleared of all surface material (including any rippable material) to expose the specific type of material to be blasted, and until the extent of the area of blasting and the required blasting charge type are known. However, blasting is probable in portions of Lot 2 and may occur in other areas of the Project site. The closest NSLU to potential blasting in Lot 2 would be the activity center, located adjacent to the western border of the Project site, which would be approximately 250 feet to the west of possible blasting, and the multi-family residences to the south of the Project site, which would be approximately 300 feet south of possible blasting. Single-family residences would be located approximately 500 feet north of possible blasting. The swimming pools at the activity center could be susceptible to cracking during a blast. See Section 3.2.1 for general background information regarding blasting.

Flyrock cannot be allowed at this site, beyond the direct area of the blast, under any circumstances. This analysis assumes that proper blast planning would be used, that all flyrock would be controlled with blast mats or other flyrock control techniques, and proper stemming materials for the charge hole would be utilized.

As with flyrock, control of airblast is dependent on the skill of the Blasting Supervisor, along with many factors including but not limited to: the depth of the charge, the type of rock, the amount of fractures in the rock, and the length of correct stemming materials. Airblast is regulated by the limits from the Code of Federal Regulations (30 CFR 816.61-68), which are provided below (refer to Table 4-2, *Maximum Allowable Airblast Limit*s).

Table 4-2
MAXIMUM ALLOWABLE AIRBLAST LIMITS

Lower Frequency Limit of Measuring System (in Hz)	Maximum Level (in ±3 dB)
0.1 Hz or lower	134 peak
2 Hz or lower	133 peak
6 Hz or lower	128 peak
C-weighted noise level (dBC)	105 dBC

The following analysis is based on a general description of potential impacts that would be result from blasting activities. The information is based on guidance for calculating the scaled distance in blasting provided by the Office of Surface Mining Reclamation and Enforcement (OSM; 2009).

Blasting operations would be conducted through the use of drilling and blasting to fracture rocks. At this time the exact amount of blasting has not been determined, however, it is assumed that approximately two to three blasting events may occur each week. Blasting operations would be conducted by a licensed blasting contractor, in strict compliance with pertinent federal, state, and county requirements. All blasting materials would be transported to the site for each blasting sequence and no explosives would be stored at the site.

A single drill rig would be used to drill a pattern of bore holes each with a 3- to 6-inch diameter. Several holes are drilled in an area that is typically at least 40,000 square feet. Typically, the pattern is laid out in a 10x10 to 20x20 grid spacing pattern between the holes depending on shot requirements, with up to approximately 25-foot deep holes. A contractor then loads the holes with carefully metered explosives. Each shot hole would be completely stemmed using fine gravel or dry sand. The shot is timed to detonate each hole(s) in sequence. This minimizes the ground vibration and noise of the blast, while maximizing fracture and controlling shot placement of the rock. The rock would be broken up to boulders less than 18 inches in diameter.

Based on an assumption of 0.5 pounds of explosive material required per ton of material removed and a typical granite weight of 166.5 pounds per cubic foot, or 2.25 tons per cubic yard, a typical shot designed to break up 10 cubic yards of material (typical truck load) would require about 11.25 pounds of explosive charge. The charge would typically consist of a 0.5-pound or less of detonation charge per hole, and the remainder of the charge would be provided by TOVEX or other similar water gel explosive slurry.

The following scaled distance factors in Table 4-3, *Scaled Distance Factors*, are based on the relationship between peak particle velocity and frequency. Analysis of scaled distance for the charge weight is based on the following:

Table 4-3
SCALED DISTANCE FACTORS

Distance from the Blasting Site (feet)	Scaled Distance Factor
0 to 300	50
300 to 5,000	55
5,001 and Beyond	65

The allowable charge weight is calculated by: $W = (D/D_S)^2$

W = Allowable charge weight in pounds
D = Distance to the nearest structure in feet
D_S = Value from table based on D

A distance (D) of 200 feet was conservatively used; the nearest NSLU (activity center) would be approximately 250 feet from possible blasting. Per Table 4-3, at a distance of 200 feet, the scaled distance factor (D_s) would be 50. Therefore, for the control of ground-borne vibration impacts to the closest NSLU, the maximum charge weight would be 16 pounds at a minimum distance of 200 feet.

This analysis is based on basic planning assumptions and does not provide final Project-specific analysis for allowable blasting charges, nor is it intended to limit the blasting company to the minimum distance or maximum charge weight listed. This planning analysis is provided as general guidance and is not intended to provide final blasting planning for any specific blast nor does it imply acceptance of any liability for the proper or improper planning of any blasting and/or responsibility for any damages caused by the blaster. All blasting planning and impacts and/or damages that may occur are the sole responsibility of the owner and blasting planning company. The Project applicant may also choose alternative options to blasting, such as the use of non-explosive chemical fracturing techniques.

Because project-specific details regarding blasting operations are not available at this time, impacts to off-site residences and other land uses are conservatively assessed as significant (**Impact Noi-2**). Implementation of measure M-Noi-2 below would ensure that potential impacts are reduced to a less than significant level.

4.2.2.1 *Mitigation*

M-Noi-2 **Blasting Management Plan:** Should blasting be required on the Project site, additional blast planning must be conducted. All blast planning must be done by a San Diego County Sheriff-approved blaster, with the appropriate San Diego County Sheriff blasting permits, in compliance with the San Diego County Consolidated Fire Code SEC. 96.1.3301.2., and all other applicable local, state, and federal permits, licenses, and bonding. The blasting contractor or owner must conduct all notifications, inspections, monitoring, and major or minor blasting requirements planning with seismograph reports, as necessary.

4.2.3 Construction Vibration

An on-site source of vibration during Project construction would be a vibratory roller (primarily used to achieve soil compaction as part of the foundation and paving construction), which is expected to be used within 65 feet of the nearest occupied residence. A vibratory roller creates approximately 0.210 in/sec PPV at a distance of 25 feet. The County provides for the use of the Caltrans standards for construction vibration impacts in the footnotes of Table 4 of the *County of San Diego Guidelines for Determining Significance, Noise*. Using the Caltrans criterion of 0.4 in/sec PPV at 25 feet, the approximately 0.210 in/sec PPV vibration impact would be less than what is considered a "severe" impact. Therefore, although vibration may be perceptible by nearby residences (the nearest of which would be 65 feet from the vibratory roller), temporary impacts associated with the vibratory roller (and other potential equipment) would be less than significant.

4.2.4 Construction Noise Impacts to Sensitive Biological Habitat

As stated under Section 4.1, if construction noise levels are in excess of 60 dBA L_{EQ} or the average ambient noise level at the edge of biologically sensitive habitat during the breeding season, they have the potential to affect sensitive species. The loudest equipment types discussed in Section 4.2.1 would generate noise levels exceeding 60 dBA L_{EQ} within the following distances: a dozer and an off-highway truck within 310 feet, an excavator and an off-highway truck within 425 feet, and a breaker within 500 feet. These are within the distances of habitat areas where sensitive species have the potential to nest during construction. According to the Project's Biological Technical Report (HELIX 2016), the Project site and immediate vicinity supports coastal sage scrub that provides suitable nesting habitat for the coastal California gnatcatcher, woodland habitat that provides suitable nesting habitat for migratory birds and raptors (e.g., Cooper's hawk), as well as riparian habitat in Hansen's Creek that runs through the site that provides suitable nesting habitat for least Bell's vireo. If construction occurs during the breeding seasons for coastal California gnatcatcher (February 15 to August 31), migratory birds and raptors (January 15 to September 15), or least Bell's vireo (March 15 to September 15), within the distances described above, a potentially significant impact could occur **(Impact Noi-3)**.

Due to the nature of blasting, it is difficult to quantify a 60 dBA L_{EQ} distance; however, it is conservatively assumed that blasting anywhere within the Project site may affect sensitive nesting species. Therefore, if blasting occurs during the breeding seasons for coastal California gnatcatcher (February 15 to August 31), migratory birds and raptors (January 15 to September 15), or least Bell's vireo (March 15 to September 15) a potentially significant impact could occur (**Impact Noi-4)**.

4.2.4.1 *Mitigation*

Mitigation for Impacts Noi-3 and Noi-4 would be satisfied by mitigation measure **BIO-3** as defined in the Project's Biological Technical Report (HELIX 2017).

4.3 Stationary Noise Impacts

The known or anticipated Project stationary noise sources include the residential HVAC systems. Potential impacts from this noise source are discussed below.

The Project includes the outdoor installation of ground-level HVAC condenser units adjacent to the proposed residential buildings. As mentioned in Section 3.2.2, modeling assumed that the air conditioning condenser would be a Carrier 38HDR060 split system. This unit typically generates a noise level of 56 dBA at a distance of 7 feet. Based on the site plan, the closest building to the nearest NSLU property line would be the northern and westernmost building in Lot 1. For these three-story townhome units, it is likely that the HVAC units would be installed in each unit's outdoor space. At the northern and westernmost lot, the building pad is set back an approximate distance of 60 feet from the adjacent property line. Assuming that an HVAC system is 3 feet from the building, the minimum distance that the HVAC unit would be to the property line would be 57 feet. At this distance, the condenser would generate a noise level of 38 dBA,

which does not exceed the County's nighttime allowable hourly limit of 45 dBA; therefore, impacts would be less than significant.

4.4 Transportation Noise Impacts

As noted in the assumptions, future traffic noise levels presented in this analysis are based on forecasted traffic volumes provided in the Project TIA. Refer to Table 3-4 for the forecasted ADT data for all analyzed traffic conditions.

4.4.1 On-site Transportation Noise

4.4.1.1 *Exterior*

Because the highest traffic volumes were estimated under the Existing + Cumulative + Project scenario, this scenario was used to conservatively estimate on-site traffic noise impacts. Eighteen receiver locations of exterior use areas (e.g., an outdoor living area such as a patio or open, non-paved area on the site) for proposed on-site residences were modeled (Receivers R1 to R18). Fourteen receiver locations for the proposed second-story balconies in Lot 3 near the roadways were modeled (Receivers B1 to B14) at 15 feet (10 feet for the second story height plus a 5 foot height for the receiver). Although Lots 1 and 2 may have second story balconies, due to the low noise levels in these areas (see Receivers R17 and R18), second story receivers were not modeled.

The results of this modeling are shown in Table 4-4, *Future Exterior On-site Noise Levels* and the location of these receivers can be seen in Figure 4, *Exterior Use Area Receiver and Required Sound Wall Locations,* and Figure *5, Balcony Receiver and Required Balcony Sound Wall Locations.*

As seen in Table 4-4, noise levels exceed the 65 CNEL maximum allowable noise level for multi-family residences for 14 of the 18 receivers modeled. Noise levels for Lots 1 and 2 were all below 65 CNEL (Receivers R17 and R18). All of the receivers exceeding the threshold are in Lot 3 and are located adjacent to Sweetwater Springs Boulevard and/or Jamacha Boulevard. Group use areas in Lot 3, such as a barbeque and pool area were below 65 CNEL (Receiver R16). Noise levels exceed the 65 CNEL threshold for all of the 14 measured balcony areas. Therefore, exterior use area noise impacts to these on-site residences are potentially significant (**Impact Noi-5).**

Table 4-4 FUTURE EXTERIOR ON-SITE NOISE LEVELS		
Receiver	**Noise Levels (CNEL)**	**Exceed Threshold?**
R1	**69**	**Yes**
R2	**69**	**Yes**
R3	**69**	**Yes**
R4	**69**	**Yes**
R5	**69**	**Yes**
R6	**69**	**Yes**
R7	**69**	**Yes**
R8	**69**	**Yes**
R9	**70**	**Yes**
R10	**69**	**Yes**
R11	**69**	**Yes**
R12	**68**	**Yes**
R13	**67**	**Yes**
R14	65	No
R15	**66**	**Yes**
R16	59	No
R17	55	No
R18	43	No
B1	**69**	**Yes**
B2	**69**	**Yes**
B3	**69**	**Yes**
B4	**69**	**Yes**
B5	**69**	**Yes**
B6	**69**	**Yes**
B7	**70**	**Yes**
B8	**70**	**Yes**
B9	**70**	**Yes**
B10	**70**	**Yes**
B11	**70**	**Yes**
B12	**70**	**Yes**
B13	**70**	**Yes**
B14	**70**	**Yes**

Note: Noise levels in table are for the Existing + Project + Cumulative condition; all numbers have been rounded to the nearest whole number.

4.4.1.2 *Mitigation*

M-Noi-3 On-Site Noise Barriers: Noise levels at exterior use areas for the proposed residences in Lot 3 adjacent to Sweetwater Springs Boulevard and/or Jamacha Boulevard and for the second-floor balcony areas exposed to noise levels in excess of 65 CNEL shall be reduced to 65 CNEL. Noise reduction for on-site exterior traffic noise impacts, which could lead to interior noise impacts, could be accomplished through on-site noise barriers (walls).

I:\PROJECTS\DDOW\DOW-02_ThePointe\Map\Noise\Fig4_Receivers_SoundWalls.mxd DOW-03 11/02/16 -RK

Exterior Use Area Receiver and Required Sound Wall Locations

SWEETWATER VISTAS

HELIX Environmental Planning

Figure 4

I:\PROJECTS\DDOW\DOW-02_ThePointe\Map\Noise\Fig5_BalconyReceivers_SoundWalls.mxd DOW-05 11/02/16 -RK

Balcony Receiver and Required Balcony Sound Wall Locations

SWEETWATER VISTAS

HELIX Environmental Planning

N 0 100 Feet

Figure 5

All sound walls for exterior use areas exceeding 65 CNEL shall be 5 feet high. The first sound wall would traverse the distance from the northwest corner of Lot 3 to the Project entrance to Lot 3. The second sound wall would travel from the southern end of the Project entrance, towards the northeastern corner of Lot 3. This sound wall would run south toward Jamacha Boulevard, and would be located behind any monumental signage or fountains when viewed from the intersection of Jamacha Boulevard and Sweetwater Springs Boulevard. The sound wall would then turn the corner to run southwest along the eastern edge of the Project site parallel to Jamacha Boulevard, ending approximately 10 feet south of the southeastern-most building in Lot 3.See Figure 4 for exterior use area sound wall locations.

For the balcony areas that exceed 65 CNEL, a 5-foot high sound wall shall be installed around each balcony. See Figure 5 for balcony sound wall locations.

The sound attenuation fence or wall must be solid. It can be constructed of masonry, wood, plastic, fiberglass, steel, or a combination of those materials, as long as there are no cracks or gaps, through or below the wall. The balcony wall can be made of composite wood with a solid lower section with a clear glass or plastic upper section to maintain views. Any seams or cracks must be filled or caulked. If wood is used, it can be tongue and groove and must be at least one-inch total thickness or have a density of at least 3½ pounds per square foot. Where architectural or aesthetic factors allow, glass or clear plastic ⅜ of an inch thick or thicker may be used on the upper portion, if it is desirable to preserve a view. Sheet metal of 18 gauge (minimum) may be used, if it meets the other criteria and is properly supported and stiffened so that it does not rattle or create noise itself from vibration or wind. Any door(s) or gate(s) must be designed with overlapping closures on the bottom and sides and meet the minimum specifications of the wall materials described above. The gate(s) may be of one-inch thick or better wood, solid-sheet metal of at least 18-gauge metal, or an exterior-grade solid-core steel door with prefabricated doorjambs.

As shown in Table 4-5, *Mitigated Exterior On-site Noise Levels*, with the sound walls installed, on-site noise levels would be below 65 dBA L_{EQ}, and impacts would be less than significant.

Table 4-5
MITIGATED EXTERIOR ON-SITE NOISE LEVELS

Receiver Name	Unmitigated Noise Levels (dBA L_{EQ})	Mitigated Noise Levels with Sound Wall (dBA L_{EQ})
R1	69	64
R2	69	65
R3	69	65
R4	69	65
R5	69	62
R6	69	60
R7	69	60
R8	69	60

Table 4-5 (cont.) MITIGATED EXTERIOR ON-SITE NOISE LEVELS		
Receiver Name	**Unmitigated Noise Levels (dBA L_{EQ})**	**Mitigated Noise Levels with Sound Wall (dBA L_{EQ})**
R9	70	63
R10	69	59
R11	69	60
R12	68	61
R13	67	62
R15	66	58
B1	69	61
B2	69	61
B3	69	61
B4	69	61
B5	69	61
B6`	69	63
B7	70	61
B8	70	65
B9	70	64
B10	70	63
B11	70	63
B12	70	63
B13	70	60
B14	70	61

4.4.1.3 *Interior*

Traditional architectural materials are normally able to reduce exterior to interior noise by up to 15 dBA. Because building façade noise levels may exceed 60 CNEL at the proposed residences in Lot 3 adjacent to Sweetwater Springs Boulevard and/or Jamacha Boulevard, traditional architectural materials would not be expected to attenuate interior noise to a level of 45 CNEL. The incorporation of M-Noi-3 would reduce exterior noise levels, but for most receivers (with the exception of R3), exterior noise levels would remain above 60 CNEL. Further, the upper stories of the units would not be affected by the noise barriers proposed as part of M-Noi-3. Therefore, interior noise levels are likely to exceed 45 CNEL, resulting in a potentially significant impact (**Impact Noi-6**).

Mitigation

M-Noi-4 **Exterior-to-Interior Noise Level Limit:** Interior noise levels for the proposed residences shall not exceed 45 CNEL. Once specific building plan information is available, additional exterior-to-interior noise analysis shall be conducted for the proposed residences in Lot 3 adjacent to Sweetwater Springs Boulevard and/or Jamacha Boulevard where exterior noise levels are expected to exceed 60 CNEL to demonstrate that interior levels do not exceed 45 CNEL. The information in the analysis shall include wall heights and lengths, room volumes, window and door

tables typical for a building plan, as well as information on any other openings in the building shell. With this specific building plan information, the analysis shall determine the predicted interior noise levels at the planned on-site buildings. If predicted noise levels are found to be in excess of 45 CNEL, the report shall identify architectural materials or techniques that could be included to reduce noise levels to 45 CNEL in habitable rooms. Standard measures such as glazing with Sound Transmission Class (STC) ratings from a STC 22 to STC 60, as well as walls with appropriate STC ratings (34 to 60), should be considered.

Appropriate means of air circulation and provision of fresh air would be provided to allow windows to remain closed for extended intervals of time so that acceptable interior noise levels can be maintained. The mechanical ventilation system would meet the criteria of the International Building Code (Chapter 12, Section 1203.3 of the 2001 California Building Code).

4.4.2 Off-Site Transportation Noise

4.4.2.1 *Exterior*

TNM software was used to calculate the noise contour distances for the following scenarios: Existing, Existing + Project, and Existing + Project + Cumulative for off-site roadway segments in the Project vicinity. The off-site roadway modeling represents a conservative analysis that does not take into account topography or attenuation provided by existing structures. The results of this analysis for the CNEL at 100 feet are shown below in Table 4-6, *Off-site Traffic Noise Levels,* and Table 4-7, *Cumulative Traffic Noise Levels.* Additional analysis for the 70, 65, and 60 CNEL distances are provided in Appendix D, *Existing and Future Traffic Noise Levels.*

As noted in Section 4.1, a significant direct impact would occur if existing conditions approach or exceed County standards and the Project more than doubles (increases by more than 3 CNEL) the existing noise level. Although some roadway segments approach or exceed county standards, the Project does not increase any of the noise levels by more than 3 CNEL. Therefore, exterior off-site direct transportation noise impacts would be less than significant.

Table 4-6 OFF-SITE TRAFFIC NOISE LEVELS				
Roadway Segment	**CNEL @ 100 feet**			
	Existing	**Existing + Project**	**Change from Existing**	**Direct Impact[1]**
Jamacha Boulevard				
San Miguel Street to Whitestone Road	64.2	64.3	0.1	No
Whitestone Road to Pointe Parkway	65.0	65.1	0.1	No
Pointe Parkway to Sweetwater Springs Boulevard	65.8	65.8	0.0	No
Sweetwater Springs Boulevard to Calavo Drive	63.7	63.8	0.1	No
Calavo Drive to Campo Road	64.3	64.4	0.1	No
Sweetwater Springs Boulevard				
SR 94 to Austin Drive	64.1	64.4	0.3	No
Austin Drive to Jamacha Boulevard	62.8	62.5	-0.3	No

[1] If existing conditions approach or exceed County standards, a direct impact to off-site uses would occur if the Project more than doubles (increases by more than 3 CNEL) the existing noise level.

4.4.2.2 *Interior*

Traditional architectural materials are normally able to reduce exterior-to-interior noise by up to 15 dBA. If the noise level at the exterior of a residence is above 60 CNEL, it may cause the interior noise level to be above the County standards of 45 CNEL. All roadway segments are modeled to be above 60 CNEL under existing conditions, and the increase associated with the Project would be less than 1 CNEL with the Proposed Project. Therefore, off-site interior direct traffic noise impacts would be less than significant.

4.4.2.3 *Cumulative Operational Noise Impacts*

Stationary Noise Sources

No planned future projects are within a sufficient distance to affect the future residences at the Proposed Project site. Further, operational noise impacts typically are assessed on a case-by-case basis and all future development would be subject to the limits within the County noise ordinance. As a result, a cumulative impact would not occur.

Cumulative On-site Traffic Noise Impacts

Cumulative traffic noise levels were already taken into account to conservatively assess on-site noise impacts as part of Section 4.4.1.

Cumulative Off-site Traffic Noise Impacts

Exterior

The potential for a cumulative noise impact can occur when traffic from multiple projects combines to increase noise levels above thresholds. A significant cumulative exterior impact would occur if the Proposed Project results in the exposure of any NSLU to an increase of

10 CNEL over pre-existing noise levels resulting in a combined exterior noise level of 60 CNEL or greater or if the Proposed Project would cause an increase of 3 CNEL in Existing + Project + Cumulative conditions if that total is above 60 CNEL. As shown on Table 4-7, no segments are identified as having a significant cumulative exterior impact according to this standard. Therefore, cumulative traffic-related exterior noise impacts are less than significant.

Interior

A significant cumulative interior impact would occur if the Project's noise increase yields interior noise levels in excess of 45 CNEL while also causing an increase at least 3 CNEL over existing conditions. As no segments are identified as having a significant cumulative exterior impact according to this standard, cumulative traffic-related interior noise impacts are not significant.

Table 4-7
CUMULATIVE TRAFFIC NOISE LEVEL IMPACTS

Roadway Segment	E	E + C	E + P + C		
	CNEL @ 100 ft.	CNEL @ 100 ft.	CNEL @ 100 ft.	Change from Existing	Cumulative Impact[1]
Jamacha Boulevard					
San Miguel St to Whitestone Rd	64.2	64.8	64.9	0.7	No
Whitestone to Pointe Parkway	65.0	65.5	65.6	0.6	No
Pointe Parkway to Sweetwater Springs Blvd	65.8	66.2	66.2	0.4	No
Sweetwater Springs Blvd to Calavo Drive	63.7	64.5	64.5	0.8	No
Calavo Drive to Campo Road	64.3	65	65	0.7	No
Sweetwater Springs Boulevard					
SR 94 to Austin Drive	64.1	64.4	64.7	0.6	No
Austin Drive to Jamacha Blvd	62.8	63.2	63.0	0.2	No

Note: Surrounding street segments that do not have residences/NSLUs adjacent to them were not included in this analysis, as impacts to NSLUs would not occur.
E = Existing; E + C = Existing + Cumulative (near term); E + P + C = Existing + Project + Cumulative (near term)
[1] A cumulative impact would occur if the Project would cause: an increase of 10 CNEL over existing noise levels, resulting in a combined exterior noise level of 60 CNEL or greater; an increase of 3 CNEL over existing conditions if that total is above 60 CNEL; or if the Project would cause interior noise levels in excess of 45 CNEL while also causing an increase at least 3 CNEL over existing conditions.

5.0 SUMMARY OF PROJECT IMPACTS AND MITIGATION

5.1 Impacts

Noi-1 **Breaking:** If construction requiring the use of a breaker occurs within 125 feet of nearby occupied residences, impacts would be significant.

Noi-2 **Blasting:** Because project-specific details regarding blasting operations are not available at this time, impacts to off-site residences are conservatively assessed as significant

Noi-3 **Sensitive Habitat Impacts from Construction:** If construction occurs with a dozer and an off-highway truck within 310 feet, an excavator and an off-highway truck within 425 feet, or a breaker within 500 feet of active nests during the breeding seasons for coastal California gnatcatcher (February 15 to August 31), migratory birds and raptors (January 15 to September 15), or least Bell's vireo (March 15 to September 15), a potentially significant impact could occur.

Noi-4 **Sensitive Habitat Impacts from Blasting:** If blasting occurs during the breeding seasons for coastal California gnatcatcher (February 15 to August 31), migratory birds and raptors (January 15 to September 15), or least Bell's vireo (March 15 to September 15), a significant impact could occur.

Noi-5 **Exterior Use Area Noise Impacts:** As seen in Table 4-4, noise levels exceed the 65 CNEL maximum allowable noise level for multi-family residences for 8 of the 18 exterior use area receivers modeled and for 10 of the 13 balcony receivers modeled. Therefore, exterior use area noise impacts to these on-site residences are potentially significant.

Noi-6 **Interior Noise Impacts:** Because exterior noise levels may exceed 60 CNEL at the proposed residences in Lot 3 adjacent to Sweetwater Springs Boulevard and/or Jamacha Boulevard (even with the incorporation of M-Noi-3), traditional architectural materials would not be expected to attenuate interior noise to a level of 45 CNEL. Therefore, interior noise levels are likely to exceed 45 CNEL, resulting in a potentially significant impact.

5.2 Mitigation

M-Noi-1 **Breaker Location:** Hydraulically operated impact hammer construction equipment, commonly known as a breaker, shall be located 125 feet from occupied residential property lines.

M-Noi-2 **Blasting Management Plan:** Should blasting be required on the project site, the project applicant shall prepare a Blast Management Plan that minimizes potential blasting effects to nearby residents. All blast planning must be done by a San Diego County Sheriff approved blaster, with the appropriate San Diego County Sheriff blasting permits, in compliance with the County Consolidated Fire Code Section 96.1.5601.2 (County 2014), and all other applicable local, state, and federal permits, licenses, and bonding. The blasting contractor or owner must conduct all notifications, inspections, monitoring, and major or minor blasting requirements planning with seismograph reports, as necessary.

M-Noi-3 **On-Site Noise Barriers:** Noise levels at exterior use areas for the proposed residences in Lot 3 adjacent to Sweetwater Springs Boulevard and/or Jamacha Boulevard and for the second-floor balcony areas exposed to noise levels in excess of

65 CNEL shall be reduced to 65 CNEL. Noise reduction for on-site exterior traffic noise impacts, which could lead to interior noise impacts, could be accomplished through on-site noise barriers (walls).

All sound walls for exterior use areas exceeding 65 CNEL shall be 5 feet high. The first sound wall would traverse the distance from the northwest corner of Lot 3 to the Project entrance to Lot 3. The second sound wall would travel from the southern end of the Project entrance, towards the northeastern corner of Lot 3. This sound wall would run south toward Jamacha Boulevard, and would be located behind any monumental signage or fountains when viewed from the intersection of Jamacha Boulevard and Sweetwater Springs Boulevard. The sound wall would then turn the corner to run southwest along the eastern edge of the Project site parallel to Jamacha Boulevard, ending approximately 10 feet south of the southeastern-most building in Lot 3. See Figure 4 for exterior use area sound wall locations.

For the balcony areas that exceed 65 CNEL, a 5-foot high sound wall shall be installed around each balcony. See Figure 5 for balcony sound wall locations.

The sound attenuation fence or wall must be solid. It can be constructed of masonry, wood, plastic, fiberglass, steel, or a combination of those materials, as long as there are no cracks or gaps, through or below the wall. The balcony wall can be made of composite wood with a solid lower section with a clear glass or plastic upper section to maintain views. Any seams or cracks must be filled or caulked. If wood is used, it can be tongue and groove and must be at least one-inch total thickness or have a density of at least 3½ pounds per square foot. Where architectural or aesthetic factors allow, glass or clear plastic ⅜-inch thick or thicker may be used on the upper portion, if it is desirable to preserve a view. Sheet metal of 18 gauge (minimum) may be used, if it meets the other criteria and is properly supported and stiffened so that it does not rattle or create noise itself from vibration or wind. Any door(s) or gate(s) must be designed with overlapping closures on the bottom and sides and meet the minimum specifications of the wall materials described above. The gate(s) may be of one-inch thick or better wood, solid-sheet metal of at least 18-gauge metal, or an exterior-grade solid-core steel door with prefabricated doorjambs.

As shown in Table 4-5, with the sound wall installed on-site noise levels would be below 65 dBA L_{EQ}, and impacts would be less than significant.

M-Noi-4 **Exterior-to-Interior Noise Level Limit:** Interior noise levels for the proposed residences shall not exceed 45 CNEL. Once specific building plan information is available, additional exterior-to-interior noise analysis shall be conducted for the proposed residences in Lot 3 adjacent to Sweetwater Springs Boulevard and/or Jamacha Boulevard where exterior noise levels are expected to exceed 60 CNEL to demonstrate that interior levels do not exceed 45 CNEL. The information in the analysis shall include wall heights and lengths, room volumes, window and door tables typical for a building plan, as well as information on any other openings in the building shell. With this specific building plan information, the analysis shall determine the predicted interior noise levels at the planned on-site buildings.

If predicted noise levels are found to be in excess of 45 CNEL, the report shall identify architectural materials or techniques that could be included to reduce noise levels to 45 CNEL in habitable rooms. Standard measures such as glazing with STC ratings from a STC 22 to STC 60, as well as walls with appropriate STC ratings (34 to 60), should be considered.

Appropriate means of air circulation and provision of fresh air would be provided to allow windows to remain closed for extended intervals of time so that acceptable interior noise levels can be maintained. The mechanical ventilation system would meet the criteria of the International Building Code (Chapter 12, Section 1203.3 of the 2001 California Building Code).

5.2.1 Significance after Mitigation

With the implementation of Measure M-Noi-1, construction impacts on nearby occupied residences due to the use of a breaker would be reduced to less than significant levels.

With the implementation of Measure M-Noi-2, blasting impacts to surrounding land uses would be reduced to less than significant levels.

With the implementation of Measure BIO-3, construction impacts to sensitive habitat would be reduced to less than significant levels.

With the implementation of Measure M-Noi-3, traffic noise impacts to exterior use areas and balconies associated with on-site NSLUs would be reduced to less than significant levels. See Table 4-5 for noise levels after mitigation.

With the implementation of Measure M-Noi-4, potential interior noise impacts to on-site NSLUs would be reduced to less than significant levels.

6.0 LIST OF PREPARERS

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7.0 REFERENCES

California Department of Transportation (Caltrans).

2013 Transportation and Construction Vibration Guidance Manual, Environmental Engineering, Hazardous Waste, Air, Noise, Paleontology Office, September.

2009 Technical Noise Supplement (TeNS). November.

2004 California Department of Transportation, Traffic Noise Model (TNM).

County of San Diego (County)

2014 County of San Diego 2014 Consolidated Fire Code. November 20.

2011 County of San Diego General Plan Update – Noise Element. August.

2010 County of San Diego Guidelines for Determining Significance and Report Format and Content Requirements - Biological Resources.

2009a County of San Diego Guidelines for Determining Significance – Noise.

2009b County of San Diego Report Format and Content Requirements – Noise. January.

HELIX Environmental Planning, Inc. (HELIX).

2017 Biological Technical Report (BTR) for Sweetwater Vistas Project.

Linscott, Law, and Greenspan Engineers (LLG).

2016 Traffic Impact Assessment (TIA) for Sweetwater Vistas Project. February.

Office of Surface Mining Reclamation and Enforcement (OSM).

2009 Controlling the Adverse Effects of Blasting (Presentation).

U.C. Davis, Transportation Noise Control Center (TNCC)

1997 Bioacoustics Research Team, Environmental effects of transportation noise, a case study: Noise criteria for the protection of endangered passerine birds. Technical Report 97-001.

U.S. Department of Transportation (USDOT)

2008 Roadway Construction Noise Model.

Appendix A

ON-SITE NOISE MEASUREMENT SHEETS

site 1

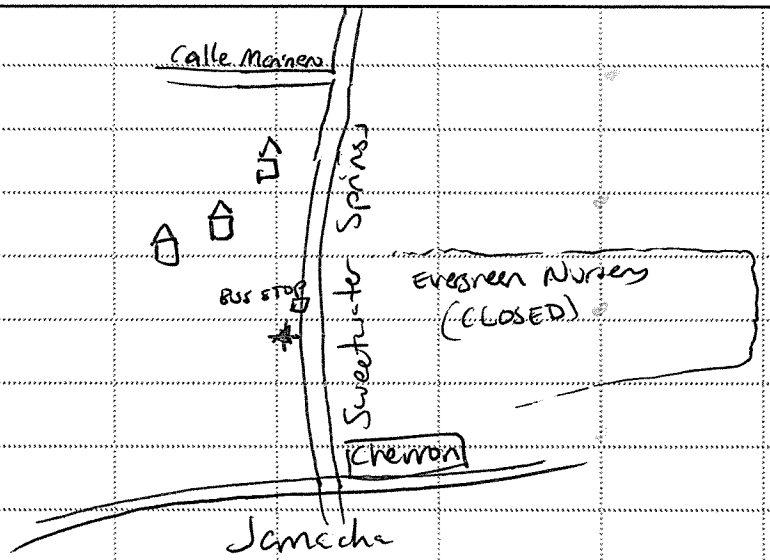
831_Dt
039

Site Survey

Job # DAW-05	Project Name: Sweetwater Vistas		
Date: 6/22/15	Site #: 1	Engineer: Jason Runyan	
Address: 2641 Sweetwater Springs Blvd. GPS 32° 43' 36.90" N + 116° 58' 13.39" W			
Meter: LD-831	Serial #: 0001390	Calibrator: CA250	Serial #: 2621

Notes: - stopped for plane + tree/gardening noise
- some tree rustling

Sketch:



Temp: 86°	Wind Spd: 7-8 mph	Humidity: mod. 72 %
Start of Measurement: 3:10 p	End of Measurement: 15 mins. 3:26 p	68.0 dBA L_{EQ}

Cars (tally per 5 cars) 1=5	Medium Trucks (MT) 1=1	Heavy Trucks (HT) 1=1
𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 +2 (202)	𝍸 𝍸 1 (11)	1 (1)

Noise Measurement for Information Only

No Through Roadways

No Calibration Analysis Will Be Provided

11

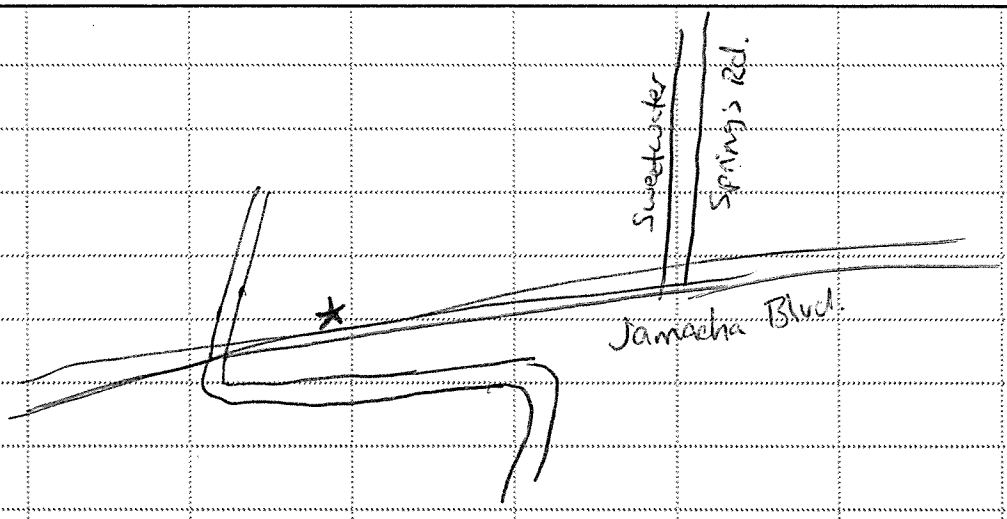
LAeq 68.0 dB. 3:26
max = 91.8

Site Survey

Job # DOW-05	Project Name: Sweetwater Vista		
Date: 6/25/2015	Site #: 2	Engineer: Jason Runyan	
Address: 10522 Jamacha Blvd			
Meter: LD-LxT	Serial #: 1741	Calibrator: CAL 150	Serial #: 3688

Notes: No tripod. - plane @ 4.

Sketch:



Temp: 81°F	Wind Spd: 5 mph	Humidity: 55 %	
Start of Measurement: 10:22	End of Measurement: 10:37	66.7 dBA L_{EQ}	

Cars (tally per 5 cars)	Medium Trucks (MT)	Heavy Trucks (HT)
𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸	𝍸 II	I

Noise Measurement for Information Only

No Through Roadways

No Calibration Analysis Will Be Provided

Appendix B

CARRIER 38HDR060 SPLIT SYSTEM CONDENSER

ELECTRICAL DATA

38HDR UNIT SIZE	V–PH–Hz	VOLTAGE RANGE*		COMPRESSOR		OUTDOOR FAN MOTOR			MIN CKT AMPS	FUSE/ HACR BKR AMPS
		Min	Max	RLA	LRA	FLA	NEC Hp	kW Out		
018	208/230–1–60	187	253	9.0	48.0	0.80	0.125	0.09	12.1	20
024	208/230–1–60	187	253	12.8	58.3	0.80	0.125	0.09	16.8	25
030	208/230–1–60	187	253	14.1	73.0	1.45	0.25	0.19	19.1	30
036	208/230–1–60	187	253	14.1	77.0	1.45	0.25	0.19	19.1	30
	208/230–3–60	187	253	9.0	71.0	1.45	0.25	0.19	12.7	20
	460–3–60	414	506	5.6	38.0	0.80	0.25	0.19	7.8	15
048	208/230–1–60	187	253	21.8	117.0	1.45	0.25	0.19	28.7	50
	208/230–3–60	187	253	13.7	83.1	1.45	0.25	0.19	18.6	30
	460–3–60	414	506	6.2	41.0	0.80	0.25	0.19	8.6	15
060	208/230–1–60	187	253	26.4	134.0	1.45	0.25	0.19	34.5	60
	208/230–3–60	187	253	16.0	110.0	1.45	0.25	0.19	21.5	35
	460–3–60	414	506	7.8	52.0	0.80	0.25	0.19	10.6	15

* Permissible limits of the voltage range at which the unit will operate satisfactorily

FLA – Full Load Amps
HACR – Heating, Air Conditininng, Refrigeration
LRA – Locked Rotor Amps
NEC – National Electrical Code
RLA – Rated Load Amps (compressor)

NOTE: Control circuit is 24–V on all units and requires external power source. Copper wire must be used from service disconnect to unit.
All motors/compressors contain internal overload protection.

SOUND LEVEL

Unit Size	Standard Rating (dB)	Typical Octave Band Spectrum (dBA) (without tone adjustment)						
		125	250	500	1000	2000	4000	8000
018	68	52.0	57.5	60.5	63.5	60.5	57.5	46.5
024	69	57.5	61.5	63.0	61.0	60.0	56.0	45.0
030	72	56.5	63.0	65.0	66.0	64.0	62.5	57.0
036	72	65.0	61.5	63.5	65.0	64.5	61.0	54.5
048	72	58.5	61.0	64.0	67.5	66.0	64.0	57.0
060	72	63.0	61.5	64.0	66.5	66.0	64.5	55.5

CHARGING SUBCOOLING (TXV-TYPE EXPANSION DEVICE)

UNIT SIZE–VOLTAGE, SERIES	REQUIRED SUBCOOLING °F (°C)
018	12 (6.7)
024	12 (6.7)
030	12 (6.7)
036	12 (6.7)
048	12 (6.7)
060	12 (6.7)

Appendix C

CONSTRUCTION NOISE MODELING OUTPUTS

Base

Equipment	dBA L_{MAX}	Percentage	Use Per Day	Ordinance Hour Day	L_{EQ} dBA (Daily)	Distance (f	**L_{EQ} dBA (Daily)**	Distance To (ft):	Distance
Noise Sum	85.0	N/A	N/A	N/A	78.6	100.0	**72.6**	75	75.5
Excavator	85.0	40%	4	8	78.0	100.0	**72.0**	75	70.7
Dump Truck	76.5	40%	4	8	69.5	100.0	**63.5**	75	26.6

Base

Equipment	dBA L_{MAX}	Percentage	Use Per Day	Ordinance Hour Day	L_{EQ} dBA (Daily)	Distance (f	**L_{EQ} dBA (Daily)**	Distance To (ft):	Distance
Noise Sum	81.7	N/A	N/A	N/A	75.9	100.0	**69.8**	75	55.2
Bulldozer	81.7	40%	4	8	74.7	100.0	**68.7**	75	48.4
Dump Truck	76.5	40%	4	8	69.5	100.0	**63.5**	75	26.6

Base

Equipment	dBA L_{MAX}	Percentage	Use Per Day	Ordinance Hour Day	L_{EQ} dBA (Daily)	Distance (f	**L_{EQ} dBA (Daily)**	Distance To (ft):	Distance
Noise Sum	85.0	N/A	N/A	N/A	78.6	425.0	**60.0**	75	75.5
Excavator	85.0	40%	4	8	78.0	425.0	**59.4**	75	70.7
Dump Truck	76.5	40%	4	8	69.5	425.0	**50.9**	75	26.6

Base

Equipment	dBA L_{MAX}	Percentage	Use Per Day	Ordinance Hour Day	L_{EQ} dBA (Daily)	Distance (f	**L_{EQ} dBA (Daily)**	Distance To (ft):	Distance
Noise Sum	81.7	N/A	N/A	N/A	75.9	310.0	**60.0**	75	55.2
Bulldozer	81.7	40%	4	8	74.7	310.0	**58.9**	75	48.4
Dump Truck	76.5	40%	4	8	69.5	310.0	**53.7**	75	26.6

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 8/5/2015
Case Description: DOW-05

				---- Receptor #1 ----			
		Baselines (dBA)					
Description	Land Use	Daytime	Evening	Night			
SF Residential	Residential	75	75	75			

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Hydra Break Ram	Yes	10	90		125	0

		Results		
		Calculated (dBA)		
				Day
Equipment		*Lmax	Leq	Lmax
Hydra Break Ram		82	72	N/A
	Total	82	72	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 8/5/2015
Case Description: DOW-05

		Baselines (dBA)		---- Receptor #1 ----
Description	Land Use	Daytime	Evening	Night
SF Residential	Residential	75	75	75

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Hydra Break Ram	Yes	10	90		90	0

Results

		Calculated (dBA)	
Equipment		*Lmax	Leq
Hydra Break Ram		84.9	74.9
	Total	84.9	74.9

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 8/5/2015
Case Description: DOW-05

		Baselines (dBA)		---- Receptor #1 ----
Description	Land Use	Daytime	Evening	Night
SF Residential	Residential	75	75	75

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Hydra Break Ram	Yes	10	90		500	0

Results

		Calculated (dBA)	
Equipment		*Lmax	Leq
Hydra Break Ram		70	60
	Total	70	60

*Calculated Lmax is the Loudest value.

Appendix D

EXISTING AND FUTURE TRAFFIC NOISE LEVELS

Table D-1
EXISTING AND FUTURE TRAFFIC NOISE LEVELS

Roadway/Segment	Existing Conditions				Existing + Project				Existing + Cumulative				Existing + Project + Cumulative			
	CNEL @ 100 ft. (dBA)	70 CNEL (ft.)	65 CNEL (ft.)	60 CNEL (ft.)	CNEL @ 100 ft. (dBA)	70 CNEL (ft.)	65 CNEL (ft.)	60 CNEL (ft.)	CNEL @ 100 ft. (dBA)	70 CNEL (ft.)	65 CNEL (ft.)	60 CNEL (ft.)	CNEL @ 100 ft. (dBA)	70 CNEL (ft.)	65 CNEL (ft.)	60 CNEL (ft.)
Jamacha Boulevard																
San Miguel St to Whitestone Rd	64.2	55	92	155	64.3	56	94	155	64.8	58	98	165	64.9	60	99	165
Whitestone to Pointe Parkway	65	60	100	166	65.1	61	101	169	65.5	63	105	175	65.6	64	106	176
Pointe Parkway to Sweetwater Springs Blvd	65.8	65	109	180	65.8	65	110	177	66.2	68	113	190	66.2	67	114	190
Sweetwater Springs Blvd to Calavo Drive	63.7	53	87	145	63.8	54	88	146	64.5	57	95	160	64.5	58	95	160
Calavo Drive to Campo Road	64.3	56	92	155	64.4	56	94	156	65	60	100	166	65	61	100	169
Sweetwater Springs Boulevard																
SR 94 to Austin Drive	64.1	55	92	155	64.4	56	94	159	64.4	57	95	160	64.7	58	97	164
Austin Drive to Jamacha Blvd	62.8	46	79	135	62.6	44	79	130	63.2	50	83	140	63.0	47	82	137

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