Appendix G
Noise Technical Report

DRAFT

TECHNICAL NOISE STUDY REPORT

Nelson Sloan Quarry Restoration Project
San Diego, California

Prepared For

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List of Abbreviated Terms

ANSI	American National Standards Institute
CBP	U.S. Customs and Border Patrol
CEQA	California Environmental Quality Act
CLUP	Comprehensive Land Use Plan
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibel
EIR	Environmental Impact Report
FHWA	Federal Highway Administration
L_{eq}	Equivalent Sound Level
LT	Long-term
MHPA	Multi-Habitat Planning Area
NSLU	Noise Sensitive Land Use
NSR	Noise Study Report
RMS	Root Mean Square
ST	Short-term
TNM	Traffic Noise Model
USIBWC	United States International Water and Boundary Commission

Executive Summary

The purpose of this technical noise study report (NSR) is to analyze potential noise impacts to adjacent noise-sensitive receptors due to the proposed Nelson Sloan Quarry Restoration Project (Project). This report establishes baseline noise environment and applicable regulatory settings, assesses project noise levels, and provides mitigation measures to reduce potential significant noise impacts.

The land surrounding the site includes recreational use, multi-habitat planning area (MHPA), single family residential, and industrial uses. The terrain consists of coastal highland rolling hills and ridges with narrow canyons extending north to the Tijuana River Valley. In April 2019, Kroner Environmental Services performed 24-hour noise monitoring at two locations to develop 24-hour noise distributions, and 20-minute short-term monitoring at three locations near the site to represent environmental noise in the area at different times of the day.

Applicable county and municipal noise limits were reviewed for this report. Based on the site visit in April 2019, it was determined that the California Environmental Quality Act (CEQA) Community Noise Equivalent Level (CNEL) limit of 60 dBA for single family residence and 60 dBA as hourly L_{eq} would be applicable to determine significant criteria for the proposed Project.

This analysis assumes that the 1,000,000 cubic yard (cy) fill option for the Project which would require up to 10 to 15 years of daily sediment transport and grading. Since filling and grading the Nelson Sloan Quarry extends for such long duration, noise associated with construction equipment for filling, compacting, and grading would be more appropriate to categorize under "operation noise." Therefore, for this analysis operation noise includes not only trucking/offloading but also equipment noise associated with backfilling, excavation, and grading.

The estimated impact at all five designated noise-sensitive receptors, R1 through R5, was below this limit; therefore, operation noise impacts associated with the proposed project would be less than significant.

Since the Nelson Sloan Quarry and surrounding areas are designated as MHPA, noise impacts on wild life, especially the California gnatcatchers, were reviewed. Due to proximity to the trucking route and construction activities, the operation noise impacts associated with the proposed project would result in a significant impact on wildlife habitat.

Cumulative noise, operational noise combined with the ambient noise, were studied for assess the combined noise impacts associated with the Project. This practice is imperative if the ambient noise is already exceeding CNEL or wildlife noise limits. Cumulative noise levels were calculated by logarithmically combining the existing ambient noise levels with the predicted operational noise levels. The cumulative noise impacts associated with the proposed project would be less than significant for adjacent residences and parks; however, cumulative noise would result in a significant wildlife impact.

Based on the current distribution of California gnatcatcher sightings, a few noise mitigation measures are investigated to reduce operational noise impact below the significance limit of 60 dBA for wildlife. However, certain mitigation measures might result in a disruption of the proposed quarry operation; therefore, implementing these noise mitigation measures for wildlife must be studied for viability.

1. Introduction

1.1 Purpose of Study

The purpose of this noise study report (NSR) is to analyze potential noise impacts to adjacent noise-sensitive receptors due to the proposed Nelson Sloan Quarry Restoration Project (Project). This report establishes baseline noise environment and applicable regulatory settings, assesses project noise levels, and provides mitigation measures to reduce potential significant noise impacts. The findings of this report will be incorporated into an Environmental Impact Report (EIR) in conjunction with the requirements of the California Environmental Quality Act (CEQA).

1.2 Project Description

The Nelson Sloan Quarry Restoration Project (project) consists of the beneficial re-use of excess sediment deposited in flood control facilities and natural habitats in the Tijuana River Valley, towards the restoration of the Nelson Sloan Quarry. More specifically, excess sediment extracted from flood control facilities maintained by State Park, the City of San Diego (City), the County of San Diego (County), and United States International Water and Boundary Commission (IBWC) that are currently hauled offsite to area landfills, or construction projects, would instead be hauled to the Nelson Sloan Quarry for processing and placement to restore the quarry to natural landform and habitat.

1.3 Project Location

As shown in Figure 1, the project site is located in the southwestern portion of the County of San Diego. Restoration activities would primarily occur within the blue rectangle area (APNs 664-011-05-00 and 664-011-04-00). The project site is located within the southeastern corner of Tijuana River Valley Regional Park and abuts Monument Road and the City of San Diego's South Bay Water Reclamation Plant immediately on the east. IBWC's South Bay International Wastewater Treatment Plant is also located further east within the complex, approximately 0.5-mile east of the project site. A new US Customs and Border Protection (CBP) facility is currently being constructed between the two water treatment complexes. The project site is bordered by federal lands managed by US CBP to the south and by County of San Diego lands to the west and north. For the purposes of this analysis, the Nelson Sloan property covers approximately 70 acres, and the project-specific site comprises approximately 40 acres within the property.

The project site is vacant and is crossed by several dirt roads and paths. An irrigation system and disturbance associated with previous staging and soil/sediment stockpile areas is visible in the eastern portion of the site. The site terrain consists of coastal highlands up to 425 feet in elevation, with finger canyons extending north to the Tijuana River Valley. The elevated vantage point provided by the mesa is occasionally used by CBP for visual surveillance of the border fence and surrounding area. There are no structures located on site. The County-owned parcels in which the project activities occur are not currently zoned. All nearby residences are located within City of San Diego jurisdiction and are subject to San Diego municipal noise ordinances outlined in Section 3.3.1.

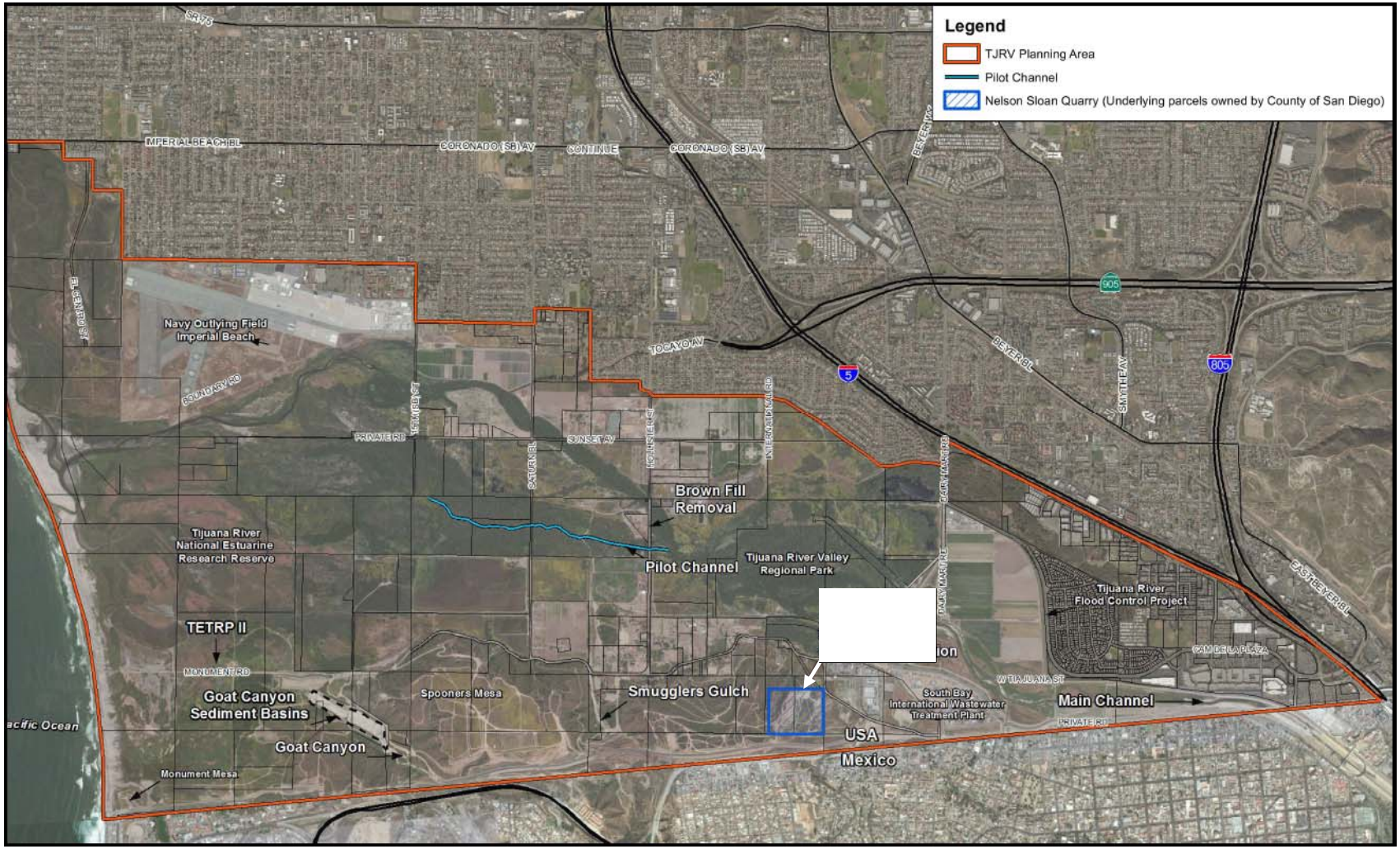


Figure 1 – Project Location

2. Fundamentals of Noise and Vibration

2.1 Noise Descriptors

Noise is generally defined as unwanted or objectionable sound. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance and, in the extreme, hearing impairment. The unit of measurement used to describe a noise level is the decibel (dB); decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. Thus, a doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; a halving of the energy would result in a 3-dB decrease.

2.2 Human Perception of Noise

The human ear is not equally sensitive to all frequencies within the sound spectrum. Therefore, a method called “A-weighting” is used to filter noise frequencies that are not audible to the human ear. The A-scale approximates the frequency response of the average young ear when listening to most ordinary everyday sounds. When people make relative judgments of the loudness or annoyance of a sound, their judgments correlate well with the A-scale levels of those sounds. Therefore, the “A-weighted” noise scale is used for measurements and standards involving the human perception of noise. In this report, all noise levels are A-weighted and “dBA” is understood to identify the A-weighted dB. Table 1 provides typical noise levels associated with common activities.

Table 1 – Common Indoor and Outdoor Noise Levels

Noises	Sound Level dBA
Threshold of pain	140
Leaf blower/Car horn	110
Gas lawn mower at 3 feet	100
Diesel truck at 50 feet/Food blender at 3 feet	90
MD 80 Passenger Plane at 1,500 feet	85
Diesel truck at 50 feet at 40 mph	84
Garbage disposal at 3 feet/Motorcycle at 25 feet	80
Car at 25 feet at 65 mph	77
Vacuum cleaner at 10 feet	70
Heavy traffic at 300 feet/Air-conditioner at 100 feet	60
Dishwasher next room	50
Quiet residential area	40
Library	35
Threshold of hearing	0

Source: City of San Diego, 2015

Human perception of noise has no simple correlation with acoustical energy. The perception of noise is not linear in terms of dBA or in terms of acoustical energy. Two noise sources do not sound twice as loud as one source. It is widely accepted that the average healthy ear can barely

perceive changes of 3 dBA (increase or decrease); that a change of 5 dBA is readily perceptible; and that an increase (or decrease) of 10 dBA sounds twice (or half) as loud.

2.3 Noise Time-Weighted Averages

In addition to noise levels at any given moment, the duration and averaging of noise over time is also important for the assessment of potential noise disturbance. Noise levels varying over time are averaged over a period of time, usually hour(s), expressed as dBA L_{eq}. For example, $L_{eq(3)}$ would be a 3-hour average noise level. When no period is specified, a 1-hour average is assumed ($L_{eq(1)}$ or L_{eq}).

The time of day of noise is also an important factor to consider when assessing potential community noise impacts, as noise levels that may be acceptable during the daytime hours may create disturbance during evening or nighttime hours, when people are typically at home and sleeping. The Community Noise Equivalent Level (CNEL) is a descriptor used to characterize average noise levels over a 24-hour period, calculated from hourly L_{eq} values, with 5 dBA added to the hourly L_{eq} levels occurring between 7:00 p.m. and 10:00 p.m. and 10 dBA added to the hourly L_{eq} levels occurring between 10:00 p.m. and 7:00 a.m., to reflect the greater disturbance potential from evening and nighttime noise, respectively. The day/night average sound level (L_{dn}) is the same as the CNEL, except the evening period is included in the daytime period.

2.4 Noise Attenuation

From the source to the receiver, noise changes both in level and frequency spectrum. The most obvious change is the decrease in noise as the distance from the source increases. The manner in which noise reduces with distance depends on the following important factors: ground absorption, atmospheric effects and refraction, shielding by natural and man-made features, noise barriers, diffraction, and reflection. For a point or stationary noise source, such as construction equipment, the attenuation or drop-off in noise level would be at least -6 dBA for each doubling of unobstructed distance between source and the receiver and could attenuate to -7.5 dBA depending on the acoustic characteristics of the intervening ground. For a linear noise source, such as vehicles traveling on a roadway, the attenuation or drop-off in noise level would be approximately -3 dBA for each doubling of unobstructed distance between source and the receiver and could attenuate to -4.5 dBA depending on the acoustic characteristics of the intervening ground.

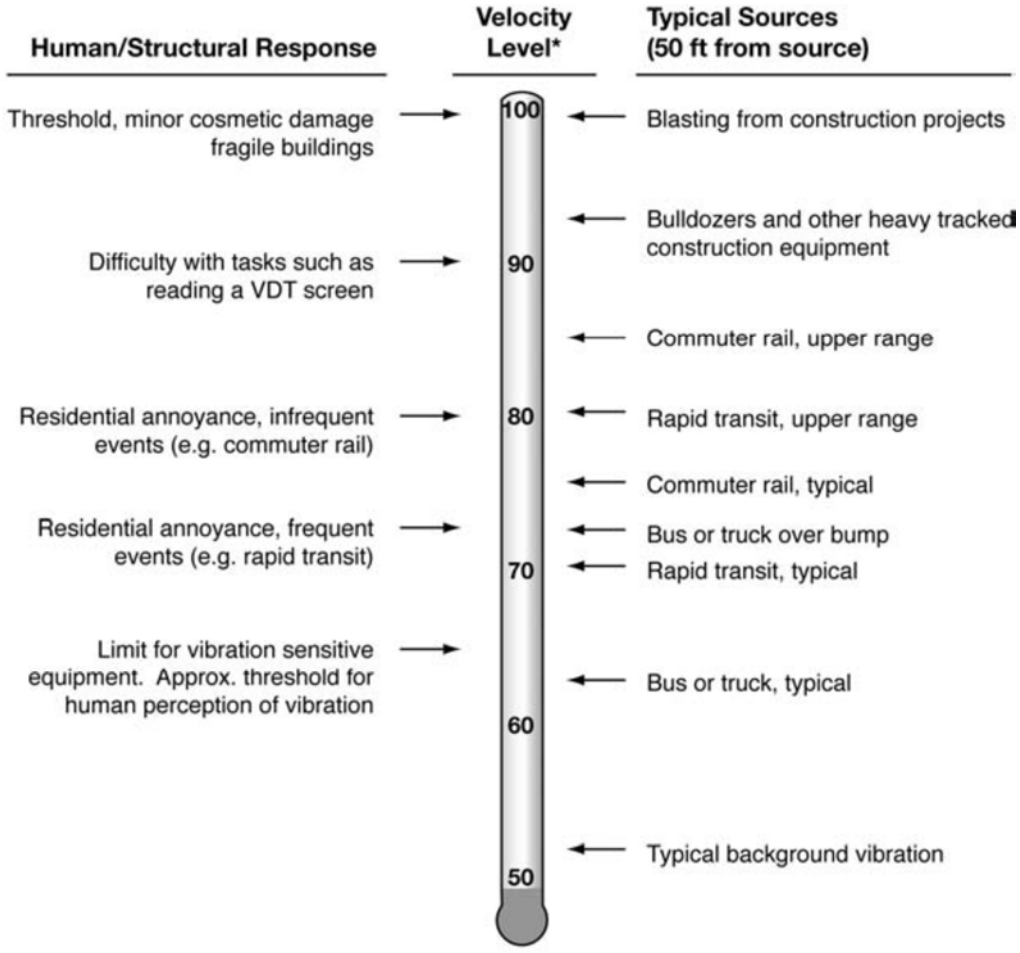
A large object in the path between a noise source and a receiver can significantly attenuate noise levels at that receiver. The amount of attenuation provided by this “shielding” depends on the size of the object and the frequencies of the noise levels. Natural terrain features, such as hills and dense woods, as well as man-made features, such as buildings and walls, can significantly alter noise levels. Walls or berms are often specifically used to reduce, or attenuate, noise.

2.5 Groundborne Vibration Fundamentals

Vibration is an oscillatory motion which can be described in terms of the displacement, velocity, or acceleration. Because the motion is oscillatory, there is no net movement of the vibration element and the average of any of the motion descriptors is zero. Displacement is the easiest descriptor to understand.

Several descriptors can be used to quantify vibration amplitude. The peak particle velocity (PPV) is defined as the maximum instantaneous positive or negative peak of the vibration signal. PPV is often used in monitoring of blasting vibration since it is related to the stresses that are experienced by buildings. Another descriptor commonly used is expressed as the root mean square (rms) velocity level in decibels, VdB, in reference to 1×10^{-6} inches/second. Typical

outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If the roadway is smooth, the vibration from traffic is rarely perceptible. Figure 2 illustrates common vibration sources and the human and structural response to ground-borne vibration. The range of interest is from approximately 50 VdB to 100 VdB. Background vibration is usually well below the threshold of human perception and is of concern only when the vibration affects very sensitive manufacturing or research equipment.



Source: FTA, 2006

Figure 2 – Typical Levels of Ground-Borne Vibration

3. Regulations and Policies

This section discusses regulations and policies that are applicable for this project to assess potential noise impacts. For the proposed project, no quantifiable federal regulations are applicable to determine significance thresholds.

3.1 State Regulation

California Health and Safety Code Division 28. Noise Control Act finds and declares 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 State of California has a responsibility to protect the health and welfare of its citizens by the control, prevention, and abatement of noise.

3.2 CEQA Thresholds

The California Environmental Quality Act (CEQA) is a statue that requires state and local agencies to identify the significant environmental impacts of a project by assessing conformance to local or other agency noise standards and to avoid or mitigate those impacts. Implementing CEQA ensures that the public and leading agencies will be informed of any potentially excessive noise levels and available mitigation measures to acceptable levels during the decision-making stage.

3.3 Local Noise Regulations

3.3.1 San Diego Municipal Code

The City of San Diego regulates noise through the City's Municipal Code, Chapter 5, Article 9.5, Noise Abatement and Control. The following sections of the Ordinance provide sound level limits between adjacent properties, noise insulation standards, and construction noise limits. Section 59.5.0401 specifies applicable exterior sound level limits, and these limits are summarized in Table 2. These municipal limits apply to the nearby sensitive receptors in the City of San Diego jurisdiction.

Table 2 – Applicable Municipal Limits

Land Use	Time of Day	One-Hour Average Sound Level (decibels)
1. Single Family Residential	7:00 am to 7:00 pm 7:00 pm to 10:00 pm 10:00 pm to 7:00 am	50 45 40
2. Multi-Family Residential (Up to a maximum density of 1/2000)	7:00 am to 7:00 pm 7:00 pm to 10:00 pm 10:00 pm to 7:00 am	55 50 45
3. All Other Residential	7:00 am to 7:00 pm 7:00 pm to 10:00 pm 10:00 pm to 7:00 am	60 55 50
4. Commercial	7:00 am to 7:00 pm 7:00 pm to 10:00 pm 10:00 pm to 7:00 am	65 60 60
5. Industrial or Agricultural	Any Time	75

Section 59.5.404 imposes construction noise limits and allowed construction hours. Construction noise restrictions are summarized in the following:

- Construction activity between the hours of 7:00 p.m. of any day and 7:00 a.m. of the following day, or on legal holidays as specified in Section 21.04 of the San Diego Municipal Code, with exception of Columbus Day and Washington's Birthday, or on Sundays is prohibited unless a permit has been applied for and granted beforehand by the Noise Abatement and Control Administrator.
- Except for emergency work, conducting any construction activity so as to cause, at or beyond the property lines of any property zoned residential, an average sound level greater than 75 decibels (dBA) during the 12-hour period from 7:00 a.m. to 7:00 p.m. is prohibited.

3.3.2 San Diego County Code

The four parcels encompassing the quarry project site are under County of San Diego jurisdiction. Although they are not currently zoned, the proposed project activities would generate noise at the adjoining city property lines. Therefore, County of San Diego noise regulations must be considered and addressed. The project site is owned by the County and located within the boundary of the County's Tijuana River Valley Regional Park. Section 36.409 of the San Diego County Noise Abatement and Control Ordinance establishes construction noise limits, which are summarized in the following:

- Except for emergency work, it is unlawful for construction operations to exceed an average sound level of 75 decibels (dBA) L_{eq} for an eight-hour period, between 7:00 AM and 7:00 PM, measured at the boundary line of the property where the source is located or measured on any property where the noise is being received.
- Exposure of selected avian species to noise caused by development and related activities is also a potentially adverse effect. The acoustical assessment of this issue is normally documented in the project's biological resource studies. However, complex projects may require a more complete acoustical assessment that provides distances for anticipated noise levels from project-related construction activities and onsite noise sources for use by the biologist in determining noise-related impacts to noise sensitive habitat/species.

3.3.2 General Plan Noise Element

The City developed the Noise Element to provide goals and policies to guide compatible land uses and the incorporation of noise attenuation measures for new uses to protect people living and working in the City from an excessive noise environment. The City uses the Land Use – Noise Compatibility Guidelines shown in Table 3 for evaluating land use noise compatibility when reviewing proposed land use development projects. A "compatible" land use indicates that standard construction methods will attenuate exterior noise to an acceptable indoor noise level and people can carry out outdoor activities with minimal noise interference. Noise Element policies state the following:

- NE-A.1. Separate excessive noise-generating uses from residential and other noise-sensitive land uses with a sufficient spatial buffer of less sensitive uses.
- NE-A.2. Assure the appropriateness of proposed developments relative to existing and future noise levels by consulting the guidelines for noise-compatible land use to minimize the effects on noise-sensitive land uses.

- NE-A.3. Limit future residential and other noise-sensitive land uses in areas exposed to high levels of noise.
- NE-A.4. Require an acoustical study consistent with Acoustical Study Guidelines for proposed developments in areas where the existing or future noise level exceeds or - Noise Compatibility Guidelines, so that noise mitigation measures can be included in the project design to meet the noise guidelines.
- NE-A.5. Prepare noise studies to address existing and future noise levels from noise sources that are specific to a community when updating community plans.

3.3.2 CEQA Threshold for Wildlife

Noise mitigation may be required for significant noise impacts to certain avian species during their breeding season, depending upon the location of the project such as in or adjacent to a Multi-Habitat Planning Area (MHPA), whether or not the project is occupied by the California gnatcatcher, least Bell's vireo, southern willow flycatcher, least tern, cactus wren, tricolored blackbird or western snowy plover, and whether or not noise levels from the project, including construction during the breeding season of these species would exceed 60 dBA L_{eq} or existing ambient noise level if above 60 dBA L_{eq}. In addition, please note that significant noise impacts to the California gnatcatcher are only analyzed if the project is within an MHPA; there are no restrictions for the gnatcatcher outside the MHPA any time of year.

3.2 Vibration Impact Criteria

County of San Diego's Guidelines for Determining Significant list quantitative ground borne vibration limits. Exposure of noise sensitive land uses (NSLUs) and other vibration sensitive uses (i.e., research and manufacturing) to existing and future ground-borne vibration and noise arising from operations related to, but not limited by, materials handling, blasting, and transportation corridors, railroads, and extractive industries is another typical adverse effect of development. This includes vibration sources caused by new development impacting existing or foreseeable future NSLUs and vibration sensitive uses. It also includes new development which creates or locates NSLUs and other vibration sensitive uses in such a place that they are impacted by ground-borne vibration and noise (a typical example being a new residential project locating residences close to a commuter railroad line). Table 4 of the County's guidelines lists ground-borne vibration limits for three categories of land use. For residences, Category 2 Land Use, an applicable ground-borne vibration impact limit is 0.0040 in/sec as rms.

Table 3 – Land Use – Noise Compatibility Guidelines

Land Use Category	Exterior Noise Exposure (dBA CNEL)				
	60	65	70	75	
Parks and Recreational					
Parks, Active and Passive Recreation					
Outdoor Spectator Sports, Golf Courses; Water Recreational Facilities; Indoor Recreation Facilities					
Agricultural					
Crop Raising & Farming; Community Gardens, Aquaculture, Dairies; Horticulture Nurseries & Greenhouses; Animal Raising, Maintain & Keeping; Commercial Stables					
Residential					
Single Dwelling Units; Mobile Homes		45			
Multiple Dwelling Units **For uses affected by aircraft noise, refer to Policies NE-D.2. & NE-D.3.*		45	45*		
Institutional					
Hospitals; Nursing Facilities; Intermediate Care Facilities; Kindergarten through Grade 12Educational Facilities; Libraries; Museums; Child Care Facilities		45			
Other Educational Facilities including Vocational/Trade Schools and Colleges and Universities		45	45		
Cemeteries					
Retail Sales					
Building Supplies/Equipment; Food, Beverages & Groceries; Pets & Pet Supplies; Sundries Pharmaceutical, & Convenience Sales; Wearing Apparel & Accessories			50	50	
Commercial Services					
Building Services; Business Support; Eating & Drinking; Financial Institutions; Maintenance & Repair; Personal Services; Assembly & Entertainment (includes public and religious assembly); Radio & Television Studios; Golf Course Support			50	50	
Visitor Accommodations		45	45	45	
Offices					
Business & Professional; Government; Medical, Dental & Health Practitioner; Regional & Corporate Headquarters			50	50	
Vehicle and Vehicular Equipment Sales and Services Use					
Commercial or Personal Vehicle Repair & Maintenance; Commercial or Personal Vehicle Sales & Rentals; Vehicle Equipment & Supplies Sales & Rentals; Vehicle Parking					
Wholesale, Distribution, Storage Use Category					
Equipment & Materials Storage Yards; Moving & Storage Facilities; Warehouse; Wholesale Distribution					
Industrial					
Heavy Manufacturing; Light Manufacturing; Marine Industry; Trucking & Transportation Terminals; Mining & Extractive Industries					
Research & Development				50	

	Compatible	**Indoor Uses**	Standard construction methods should attenuate exterior noise to an acceptable indoor noise level. Refer to Section I.
		Outdoor Uses	Activities associated with the land use may be carried out.
45, 50	**Conditionally Compatible**	**Indoor Uses**	Building structure must attenuate exterior noise to the indoor noise level indicated by the number (45 or 50) for occupied areas. Refer to Section I.
		Outdoor Uses	Feasible noise mitigation techniques should be analyzed and incorporated t make the outdoor activities acceptable. Refer to Section I.
	Incompatible	**Indoor Uses**	New construction should not be undertaken.
		Outdoor Uses	Severe noise interference makes outdoor activities unacceptable.

Source: City of San Diego CEQA Significant Determination Thresholds

4. Existing Noise Environment

4.1 Land Uses

The land surrounding the site includes recreational use, multi-habitat planning area (MHPA), single family residential, and industrial uses. The terrain consists of coastal highland rolling hills and ridges up to 425 feet in elevation, with narrow canyons extending north to the Tijuana River Valley. Vegetation around the site is limited mostly to low-lying shrubs and some small trees. Designated recreational park lands (Tijuana River Valley Regional Park) border the north and west sides of the site. The park lands include a network of unpaved recreational trails and picnic areas. These recreational lands are considered noise-sensitive, and short-term noise monitoring was performed at two park locations. Several single-family homes, horse stables, and agricultural lands exist beyond the park land to the northwest, along Monument Road at about a half-mile radius from the nearest portion of the site. These homes are separated from the park by a steep ridge, and thus do not have a line of sight to the quarry. These homes were designated as sensitive noise receptors and both short-term and long-term noise monitoring were conducted in the area, as shown in Figure 3.

The existing noise environment mainly consists of occasional vehicle pass-bys by local construction and residential vehicles. This observation was substantiated by conducting a local traffic survey at the intersection of Monument Road and Hollister Street, from 12:30 PM to 1:30 PM on Wednesday, April 24. This traffic count at this location was chosen because these two roadways are the local access roads; thus, providing a better understanding of the ambient noise setting associated with vehicle pass-bys. Within this hour, 41 cars and 20 pickup trucks as well as 8 utility heavy truck pass-bys related to a nearby powerline repair were observed. One dump truck also passed by, traveling east on Monument Road toward the CBP construction site. The most common route of the residential vehicles was eastbound on Monument Road toward the residential area and parklands. The survey confirmed that residential traffic sources make up the largest portion of ambient noise at noise-sensitive locations near the project site.

Park lands adjacent to the project site are also habitat to the coastal California gnatcatcher, a noise-sensitive bird species. Accordingly, the City of San Diego requires that during the nesting season between March 1 and August 15, no construction activities within the site result in noise levels exceeding 60 dBA hourly average. The locations of gnatcatcher sightings near the project site will be analyzed as sensitive noise receptors, as plotted in Figure 3 as WR1-WR3 (“wildlife receptors”).

The South Bay Water Reclamation Plant complex is located approximately 0.2-mile east of the project site, and the and the International Wastewater Treatment Plant is located further east, about 0.5-mile east of the site. Between the two water treatment facilities, a U.S. Customs and Border Protection (CBP) facility is being constructed. A dense neighborhood of single-family homes exists further east, beginning about 1 mile from the project site. A stretch of open grassland and riverbed separates the neighborhood from the water treatment and CBP facilities. The homes of this neighborhood were also identified as sensitive noise receptors, and long-term monitoring was performed at one of the homes closest to the project site, as shown in Figure 3.

To the south, the site is closely bordered by federal lands along the United States-Mexico international border.

**For noise modeling purposes, the construction equipment location was chosen for proximity to the wildlife receptors.*

Figure 3. Environmental Noise Long-term and Short-term Monitoring Locations.

4.2 Noise Measurement Results

The existing environmental noise is characterized based on short- and long-term noise monitoring that was performed in the vicinity of the project area. Two long-term monitoring locations (LT1 and LT2) were utilized to develop 24-hour distributions of L_{eq} and CNEL values at nearby residential areas. In addition, short-term monitoring was performed at three different noise-sensitive locations (ST1, ST2, and ST3) near the site to represent environmental noise in the area, at different times of the day. A summary of the monitoring results at all five stations is shown below in Table 4. Noise monitoring was conducted using the Larson Davis models 831 and LXT meters. These instruments are American National Standards Institute (ANSI) Type I certified.

4.2.1 Long-Term Monitoring

Two 24-hour continuous noise measurements were taken to characterize CNEL at the nearest residential neighborhoods. Environmental noise was recorded on the following properties and dates for 24 hours:

- 3250 Glancy Drive (LT1); 4/23/19 2:00 PM – 4/24/19 2:00 PM
- 2550 Monument Road (LT2); 4/24/19 12:00 PM – 4/25/19 12:00 PM

The locations of these properties are plotted in Figure 3. The Glancy Drive property (LT1) is on the southwestern edge of a dense single-family home residential neighborhood, about one mile east of the project site. An open field, riverbed, and a wastewater treatment complex lie between the neighborhood and the site, but no major geological noise barriers exist. The noise monitor was set in the backyard of the residence, facing the project site.

The Monument Road property (LT2) is among a small neighborhood of larger, more rural residential properties and includes an equestrian complex. This neighborhood is separated from the project site by a large ridge that blocks any line of sight from the residences to the project site. The noise monitor was set at the southeast corner of the property near Monument Road, facing the project site.

A summary of the hourly L_{eq} readings and photographs of the noise monitor siting are included in Attachment A.

4.2.2 Short-Term Monitoring

Several noise-sensitive locations near the project site were identified for short-term monitoring. These short-term noise monitoring locations were chosen to represent the distribution of ambient noise in the area near residences and utilized recreational areas. Short-term monitoring was performed as 20-minute measurements in both a morning and afternoon period at each location. As shown in Figure 3

, the three representative noise-sensitive locations selected for short-term monitoring were north or northwest of the project site, within a half-mile distance:

- Intersection of Monument Road and Hollister Street near 2301 Monument Road residence (ST1)
- Tijuana River Valley Regional Park – ranger station lot and wildlife sensitive habitat (ST2)
- Tijuana River Valley Regional Park – trailhead on Dairy Mart Rd (ST3)

Table 4. Summary of monitoring results near the Nelson Sloan Quarry

Monitor	Address[1]	Land Use	Date	Duration	L_{eq} (dBA)	L_{max} (dBA)	CNEL
LT1	3250 Glancy Drive	Single family residential	4/23/19 14:00 - 4/24/19 14:00	24 hrs	55	58	58
LT2	2550 Monument Road	Single family residential	4/24/19 12:00 - 4/25/20 12:00	24 hrs	52	57	55
ST1	2301 Monument Road	Single family residential	4/24/2019 12:53	20 mins	59	75	62[2]
			4/25/2019 8:38	20 mins	58	76	
ST2	Tijuana River Valley Park - ranger station lot and wildlife sensitive habitat	Park - picnic area	4/24/2019 13:38	20 mins	57	70	58[2]
			4/25/2019 9:04	20 mins	52	70	
ST3	Tijuana River Valley Park - Dairy Mart trailhead	Park - trailhead	4/24/2019 14:07	20 mins	54	66	59[2]
			4/25/2019 9:31	20 mins	58	74	

Notes:

1 - All monitoring locations are within the City of San Diego.

2- CNEL values at ST1, ST2, and ST3 were estimated by comparing hourly L_{eq} distributions to 24-hour CNEL at the adjacent long-term location.

5. Impact Analysis

This section addresses project-related noise impacts that could occur during the project construction and operation. This analysis assumes that the 1,000,000 cubic yard (cy) option, described in the Management and Operations Plan (AECOM, 2016), will be used for the Nelson Sloan Quarry Restoration project. Since the project site is owned by County of San Diego but surrounded by sensitive receptors within the City of San Diego jurisdiction, significance criteria from both jurisdictions were incorporated for the analysis where it is applicable.

5.1 Construction Noise

The 1,000,000-cy fill option for the Nelson Sloan Quarry Restoration is estimated to take up to 10-15 years of continuous operation, considering the rate at which deposited sediment becomes available for fill. Thus, all project-related noise would be appropriate to be considered "operational" noise for the purpose of this impact analysis.

5.2 Operational Noise

For the purpose of this impact analysis, all activities related to the Nelson Sloan Quarry Restoration, including the trucking, offloading, excavating, grading, and moving of sediment will be considered operational noise. The impact of operational noise on sensitive receptors was analyzed as two distinct processes: the transportation of sediment to the quarry and the operation of construction equipment within the quarry.

The Management and Operations Plan assumes that 156,000 cy of sediment per year is available for placement in the quarry, and the Cost Analysis assumes haul truck volumes of 18 cy. Thus, given 260 10-hour working days per year, approximately 3 truckloads of sediment per hour would be required. The Federal Highway Administration (FHWA) Traffic Noise Model (TNM) Version 2.5 (USDOT, 2004) was applied to estimate noise impacts of this trucking volume on the designated noise-sensitive receptors. It is assumed that haul trucks would travel primarily east from Goat Canyon to the quarry, along Monument Road, and return the same route. The TNM noise impact results are presented in Table 5, along with construction equipment noise impacts which are discussed in the next section. TNM noise impact results are based primarily on the distance of noise-sensitive receptors from the road, major terrain features, trucking frequency, and internal FHWA database values for truck noise emissions. The largest noise impacts of sediment hauling will be observed at properties along Monument Road.

Quarry-filling operations will continue over the project period as sediment is delivered. Noise impacts on sensitive receptors were estimated using noise emission reference levels and usage factors for construction equipment as presented in Table 1 of the FHWA Roadway Construction Noise Model User's Guide (USDOT, 2006), and the distances from sensitive noise receptors. Per the needs described in the Management and Operations Plan, this analysis assumes the operation of one dozer, excavator, grader, and scraper for 10 hours per day. For these noise impact calculations, the locations of the construction equipment were assumed based on the current topography of the quarry and the fill plans and were conservatively placed in the northern portion of the site, closer to the sensitive noise receptors as shown in Figure 3. As the quarry-filling operations fill up the canyons, the vertical positions of the construction equipment will be steadily rising. Therefore, it was assumed that there will be a minimal noise-shielding between construction equipment and the receptors to produce a conservative approach.

Combined operational noise impact estimations on nearby sensitive noise receptors are presented below in Table 5. The City of San Diego's limit for operational noise impact is 60 dBA CNEL. The estimated impact at all five designated noise-sensitive receptors, R1 through R5, was

below this limit. No nighttime operations will be performed during this project, which reduces the 24-hour CNEL values. Therefore, operation noise impacts associated with the proposed project would be less than significant.

Table 5. Operational Noise Impacts on Sensitive Noise Receptor Locations

Sensitive Noise Receptor	Land Use[1]	Distance from road (ft)	Truck Traffic (dBA)	Constr. Equip (dBA)	Combined Operation (dBA)	Project CNEL[2] (dBA)	CNEL Limit (dBA)	Impact?
R1	SFR	1850	< 40	43	43	40	60	No
R2	SFR	45	52	53	56	53	60	No
R3	SFR	20	56	47	57	54	60	No
R4	Park	140	45	57	57	54	65	No
R5	Park	4275	< 40	44	44	41	65	No

Note:
1 – SFR: Single-family residence
2 – No nighttime trucking or construction equipment operation will be performed during this project, which reduces the CNEL impact.

5.3 Operational Noise for Wildlife

As shown previously in Figure 3, several observations of the coastal California gnatcatcher, a noise-sensitive bird species, have been made in the vicinity of the project site (Dudek, 2019). The survey results are included in Attachment B. These locations, WR1 through WR3, are also analyzed for wildlife operation noise impact of both trucking and construction equipment. Because the project site is located within the City's Tijuana River Valley Regional Park and the City's Multi-Habitat Planning Area (MHPA), potential impacts to the coastal California gnatcatcher are required to be analyzed in accordance with the City of San Diego CEQA Significance Determination Thresholds (City of San Diego, 2016).

The gnatcatcher sightings are located near the top of ridges without direct views to the floor of the quarry. These steep ridges around the quarry will serve as a natural noise barrier during the early phases of the project. However, as the quarry is filled and its floor rises, a direct line of sight between the construction operations and gnatcatcher locations WR1 and WR2 will eventually be achieved. The noise impact calculations provided below conservatively assume a line of sight between gnatcatcher locations and construction operations.

As shown in Table 6, the construction equipment is estimated to exceed the operational limit at WR1 and WR2 of the California Gnatcatcher locations because of the proximity of the bird habitat to the quarry. Therefore, the operation noise impacts associated with the proposed project would result in a significant wildlife impact.

Table 6. Combined Operational Noise Impacts on the California Gnatcatcher Bird Habitat

Sensitive Bird Habitat Receptor	Distance from road (ft)	Truck traffic (dBA)	Constr. Equip (dBA)	Combined Operation (dBA)	Limit (dBA)	Impact?
WR1	400	38	66	66	60	Yes
WR2	1200	28	66	66	60	Yes
WR3	1350	27	59	59	60	No

Accordingly, project operations may need to be reduced during the nesting season of March 1 to August 15 to meet the City's 60-dBA noise limit, which likewise applies to sensitive wildlife habitat.

As shown in Table 6, this analysis indicates that gnatcatcher habitat beyond a quarter mile from construction equipment operations should remain suitable.

5.4 Cumulative Noise Impact

The project's operational noise was combined with the environmental noise baselines established in Section 4.2 to estimate total cumulative noise increase due to the Nelson Sloan Quarry Restoration project. Table 7 presents the estimated cumulative noise levels at the noise-sensitive locations that were monitored for baseline environmental noise. Except for R2, net noise increase of the cumulative noise level at the sensitive receptors would be 3 dBA or less. For R2, a 4-dBA net noise increase of CNEL is expected; however, the cumulative CNEL will still be meeting the limit of 60 dBA. Therefore, the proposed project would not result in a significant cumulative noise impact on residences or recreation areas.

Table 7. Estimated Cumulative Noise Levels at Sensitive Noise Receptor Locations

Sensitive Noise Receptor	Existing CNEL	Project noise CNEL	Cumulative CNEL	CNEL Limit	Net Increase	Cumulative Impact
	dBA					
R1	58	43	58	60	0	No
R2	55	56	58	60	4	No
R3	61	57	63	60	1	No
R4	57	57	60	65	3	No
R5	59	44	59	65	0	No

5.5 Cumulative Noise Impact for Wildlife

Table 8 presents the estimated cumulative noise levels at specific sites where the noise-sensitive coastal California gnatcatcher bird species has been observed. As the project progresses and the elevation of the quarry floor increases, it is possible that operations may result in higher operation noise to this bird habitat. These calculations conservatively assume the loudest-case, line-of-sight scenario between gnatcatcher habitat and construction operations.

Since the construction operation would normally occur during daytime, the arithmetic average of measured hourly noise levels at R2 between 8:00 AM and 6:00 PM with the location adjustment factor for R4 was used to estimate existing noise levels at the habitat. As summarized in Table 8, the cumulative noise increase due to the proposed project would result in a significant wildlife impact for WR1 and WR2.

Table 8. Estimated Cumulative Noise Levels at California Gnatcatcher Habitat Locations

Sensitive Bird Habitat	Existing Hourly L_{eq}[1]	Project Hourly L_{eq}	Cumulative Hourly L_{eq}	Net Increase	Cumulative Impact
	dBA				
WR1	54	66	66	12	Yes
WR2	54	66	66	12	Yes
WR3	54	59	60	6	No

Note:

1 – Existing environmental noise at all three gnatcatcher habitat locations is assumed to equal that at the Tijuana River Valley Ranger Station – the nearest and most representative monitoring site.

5.6 City of San Diego Initial Checklist for Noise Impacts

The City of San Diego uses Initial Study Checklists as analytical tools to help evaluate the potential significance of a project's environmental impact and provide a consistent and objective basis for determining the level of impacts. The four parcels encompassing the quarry project site adjoin the City boundaries; therefore, noise associated with the proposed project would have to meet regulatory noise limits imposed by the City of San Diego.

Based on the analysis in the previous sections, the following questions are from the City's Initial Study Checklist and are used to provide guidance to determine potential significant impacts related to noise:

Would the project:

1. *Result or create a significant increase in the existing ambient noise levels?*

   No; The estimated net increases of the cumulative noise level at all sensitive receptors in the City of San Diego would be 4 dBA or less. The 4-dBA net noise increase of CNEL is expected at R2; however, the cumulative CNEL will still be meeting the City of San Diego ordinance limit of 60 dBA.

2. *Exposure of people to noise levels which exceed the City's adopted noise ordinance or are incompatible with Table K-4?*

   No; The City of San Diego's limit for operational noise impact is 60 dBA CNEL. The estimated impact at all five residential noise-sensitive receptors was below this limit. Proposed operational noise due to various construction equipment at project site would not exceed the county construction noise limit of 75 dBA at the boundaries.

3. *Exposure of people to current or future transportation noise levels which exceed standards established in the Transportation Element of the General Plan or an adopted airport Comprehensive Land Use Plan?*

   No; Traffic noise associated with haul trucks on the local road will result in CNEL less than the limit of 60 dBA; therefore, adjacent receptors would not be exposed to noise exceeding the limits in the Transportation Element of the General Plan.

4. *Result in land uses which are not compatible with aircraft noise levels as defined by an adopted airport Comprehensive Land Use Plan (CLUP)?*

   No; The closest airport, Naval Outlying Landing Field in Imperial Beach, is located at least two miles away. The proposed project would not affect aircraft noise from Naval Outlying Landing Field.

5.7 Vibration Impacts

Within the proximity of the proposed project area, there are no buildings where low ambient vibration is essential for interior operations such as research and manufacturing facilities with special vibration constrains. The closest residence, Category 2 Land Use, is located at least 900 feet away from the construction and grading boundary. This distance is greater than the vibration impact screening distance of 200 feet in Attachment D of the County's Guidelines for Determining Significance Noise. Large bulldozer and excavators would normally generate 0.023 inch/sec as

rms (87 VdB) at 25 feet. Therefore the vibration at the nearest residential structure at 900 feet would be approximately 0.0001 inch/sec as rms less than the limit of 0.004 inch/sec as rms. Therefore, vibration impacts would not result in a significant impact on residences.

6. Mitigation Measures

This section provides noise mitigation measures to reduce and minimize project operation noise. The recommended measures in this section mainly focus on the acoustical aspect; therefore, there measures might create conflict or coordination with other project disciplines.

6.1 Mitigation Measures for Construction Noise

As stated in Section 5.1, all project-related noise would be appropriate to be considered "operational" noise. The following section provides mitigation measures for construction equipment.

6.2 Mitigation Measures for Operation Noise

Although operational noise would be less than significant, the following operation noise reduction measures would reduce and minimize operation noise levels:

- Avoid truck dirt hauling and grading between 7:00 PM and 7:00 AM where noise sensitivity of nearby residents is higher.
- The project shall establish a telephone hot-line for the public to report any significant noise disturbance associated with the construction and operation of the proposed project. The project site during the operation of the project shall post the hot-line telephone number on the site perimeter fences that are easily visible to the nearby residents.
- The contractor shall document, investigate, evaluate and attempt to resolve any noise complaints throughout the operation of the project. The following provides requirement to follow up any noise complaints:
    - Create a noise complaint resolution form to document any complaints and response to each noise complaint.
    - Contact the complainant(s) within 24 hours
    - Investigate to determine the source of noise associated with the complaint
    - Ensure that identified construction equipment are properly operating and maintained according to manufacturers' standards
    - If possible, relocate noise generating equipment, especially stationary equipment, away from sensitive receptors nearest the project site
- Do not unnecessarily idle haul trucks and construction equipment.
- Haul trucks shall use an approved haul route(s) to minimize noise disturbance.
- All noise-producing construction equipment will be required to be equipped with mufflers and kept in good operating condition that meets or exceeds original factory specifications. Mobile equipment will be equipped with shrouds and noise-control features that are readily available.

6.3 Mitigation Measures for Operation Noise for Wildlife

It is expected that the project operation noise would result in a significant impact. The following mitigation measures are based on the current observation of California gnatcatcher sightings:

- Quarry-filling operations may need to be reduced or suspended during nesting season to avoid exceeding the wildlife noise limit of 60 dBA.

- Surveys shall be conducted periodically in the vicinity of the project site to identify nesting locations and migratory behavior.
- Perform periodic noise monitoring at the latest gnatcatcher sighting location(s) to comply with the limit of 60 dBA.

7. References

AECOM Technical Services, Inc. 2016. Nelson Sloan Management and Operations Plan and Cost Analysis. April 5.

City of San Diego. 2016. California Environmental Quality Act (CEQA) Significance Determination Thresholds. July.

County of San Diego. 2009. Guidelines for Determining Significance Noise. January.

Dudek. 2019. Nelson Sloan Quarry Restoration Project – Focused California Gnatcatcher Survey Results. April.

Federal Transit Administration (FTA), Office of Planning and Environment. 2006. Transit Noise and Vibration Impact Assessment. May.

U.S. Department of Transportation (USDOT). 2004. Federal Highway Administration's Traffic Noise Model (FHWA TNM®). April.

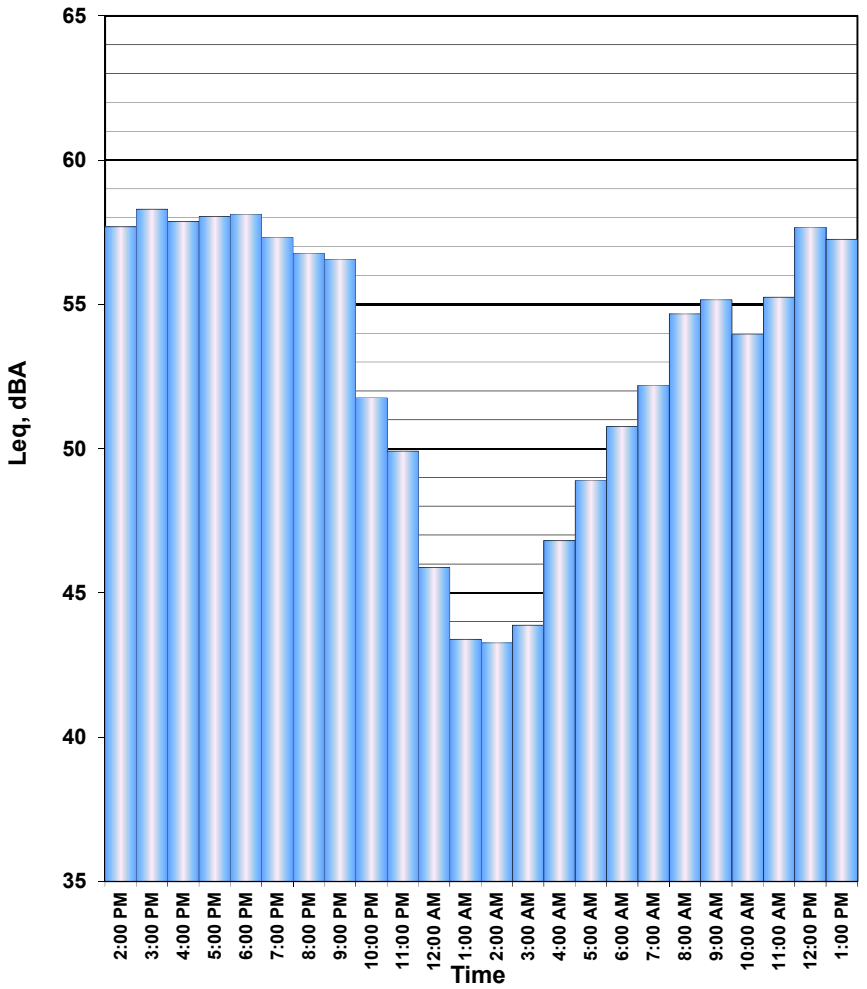
U.S. Department of Transportation (USDOT), Research and Innovative Technology Administration. 2006. FHWA Roadway Construction Noise Model User's Guide. January.

Attachment A
Hourly Charts and Photos and Field Notes

Attachment A: 24-hour Noise Monitoring Summaries
Site LT1 Hourly Noise Levels, $L_{eq}(h)$

Location: 3250 Glancy Dr
Position: backyard lawn
Sources: Traffic, pets, household activities
Date: **4/23 - 4/24** **Notes:**

TIME	4/23 - 4/24 $L_{eq(h)}$ dBA
2:00 PM - 3:00 PM	58
3:00 PM - 4:00 PM	58
4:00 PM - 5:00 PM	58
5:00 PM - 6:00 PM	58
6:00 PM - 7:00 PM	58
7:00 PM - 8:00 PM	57
8:00 PM - 9:00 PM	57
9:00 PM - 10:00 PM	57
10:00 PM - 11:00 PM	52
11:00 PM - 12:00 AM	50
12:00 AM - 1:00 AM	46
1:00 AM - 2:00 AM	43
2:00 AM - 3:00 AM	43
3:00 AM - 4:00 AM	44
4:00 AM - 5:00 AM	47
5:00 AM - 6:00 AM	49
6:00 AM - 7:00 AM	51
7:00 AM - 8:00 AM	52
8:00 AM - 9:00 AM	55
9:00 AM - 10:00 AM	55
10:00 AM - 11:00 AM	54
11:00 AM - 12:00 PM	55
12:00 PM - 1:00 PM	58
1:00 PM - 2:00 PM	57
CNEL	58



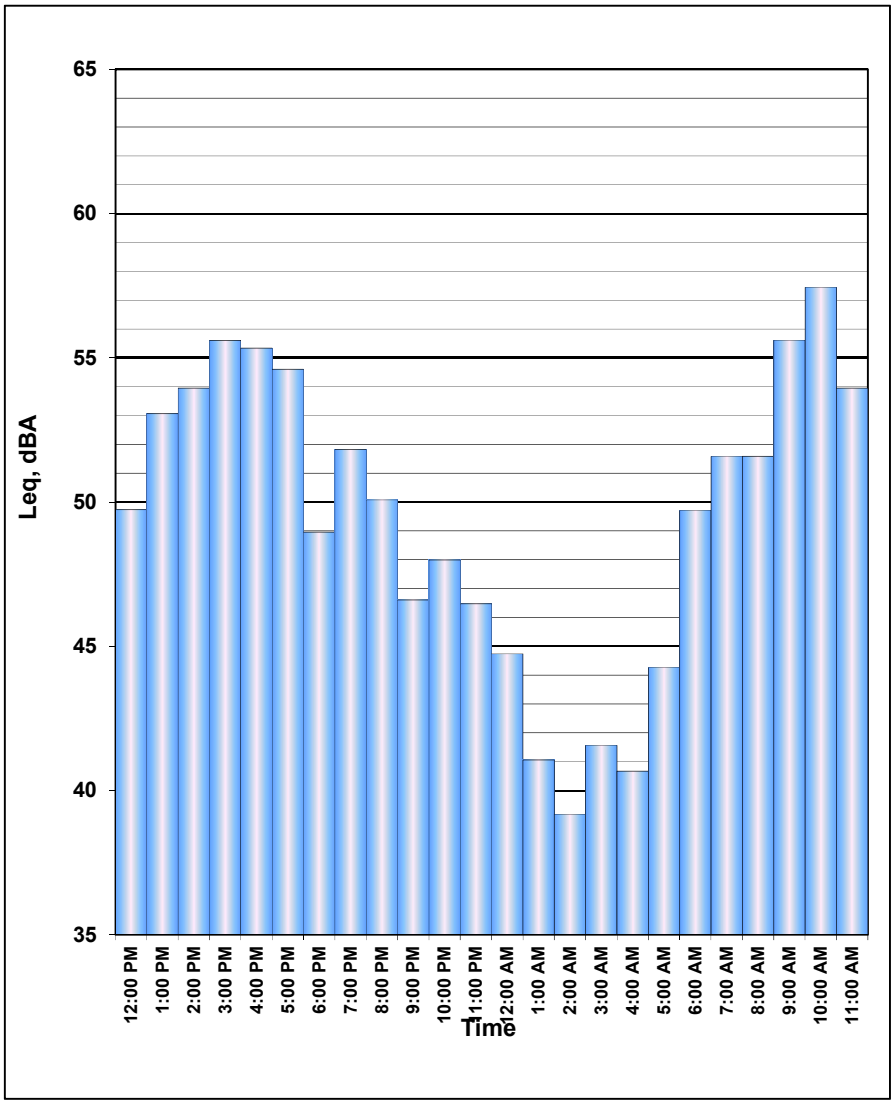
NOTES:

See enclosed site photo.

Site LT2 Hourly Noise Levels, $L_{eq}(h)$

Location: 2550 Monument Rd
Position: Edge of horse corrals, near Monument Dr.
Sources: Traffic, Property work with tractor
Date: **4/24 - 4/25** **Notes:** Resident was operating tractor during the morning of 4/25

TIME	4/23 - 4/24 $L_{eq(h)}$ dBA
12:00 PM - 1:00 PM	50
1:00 PM - 2:00 PM	53
2:00 PM - 3:00 PM	54
3:00 PM - 4:00 PM	56
4:00 PM - 5:00 PM	55
5:00 PM - 6:00 PM	55
6:00 PM - 7:00 PM	49
7:00 PM - 8:00 PM	52
8:00 PM - 9:00 PM	50
9:00 PM - 10:00 PM	47
10:00 PM - 11:00 PM	48
11:00 PM - 12:00 AM	46
12:00 AM - 1:00 AM	45
1:00 AM - 2:00 AM	41
2:00 AM - 3:00 AM	39
3:00 AM - 4:00 AM	42
4:00 AM - 5:00 AM	41
5:00 AM - 6:00 AM	44
6:00 AM - 7:00 AM	50
7:00 AM - 8:00 AM	52
8:00 AM - 9:00 AM	52
9:00 AM - 10:00 AM	56
10:00 AM - 11:00 AM	57
11:00 AM - 12:00 PM	54
CNEL	55



NOTES:

See attached site photos.

Monitor was set up facing southeast toward Monument Rd and the Project site.

KRONER ENVIRONMENTAL SERVICES, INC.

Nelson Sloan Quarry Restoration Project

Engineer / Technician: Drew Polley	Company: Kroner Environmental Services	Date: 4/24/19
Monitoring Location Address: Monument / Hollister near 2301 Monument		Location #: ST1
Wind Speed: 5 MPH (Km/Hr = 1.6 x MPH))	Direction: West →	

Circle the Applicable Land Use

(Residential / Institutional) Commercial / Commercial Sensitive Industrial

Sound Level Meter Model & Serial #	Microphone: Serial #	Pre amp: Serial #	Calibrator Serial #
(Larson Davis LXT, #4566)	(157399)	(36017)	8807
Larson Davis 831, #1644	106012	10109	12540
LarsonDavis 831, #1451	146528	29542	(3884)
Larson Davis 820, #0766	2559	795	

Meter Setting: A-Weighted Sound Level (Slow)

Time of Calibration: 12:50 PM

Location of the Sound Level Meter: (5 feet above Ground surface and over 6 feet from building/~~reflective surface~~)

Monitoring Was Conducted: 50 ~~feet from construction~~ / (feet from sensitive receptor)

Type of Equipment Operating: Bobcat 753 loader on property
Lift / Power line work

Circle one of the Following:

Ongoing Construction | Post-Construction | (Baseline Conditions (Contract))

Allowable Noise Limit:

Duration of Monitoring Measurement: (15 minutes to 1 hour) 20 minutes

(Complete all that Apply)

Active Contract(s) (list all contracts that contribute to measured noise): **C1045**

Complaint Response (Describe: Include Log-in #)

Abatement Follow-up (Describe):

Time Start	Time End	L_{eq}	L_{50}	L_{10}	$L_{1.0}$	L_{max}
12:53	13:13	58.7	55.1	60.9	69.3	74.7

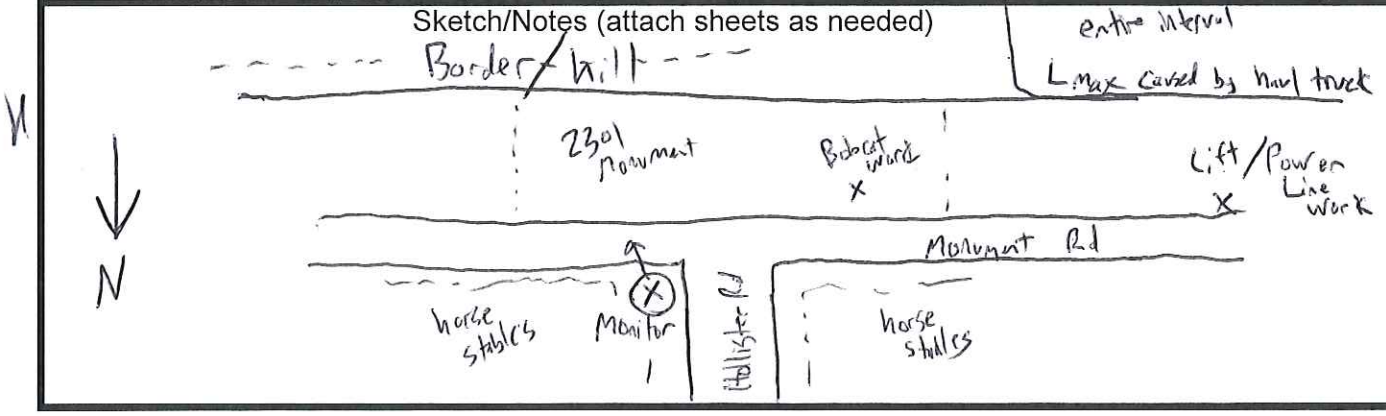
Notes:

Bobcat operating on 2301 Monument property until 1:06 PM

Lift truck operating on power line on Monument ~200 feet away for entire interval

L_{max} caused by haul truck

Sketch/Notes (attach sheets as needed)



KRONER ENVIRONMENTAL SERVICES, INC.

Nelson Sloan Quarry Restoration Project

Engineer / Technician:	Company:	Date:
Drew Polley	Kroner Environmental Services	4/25/19

Monitoring Location Address: Hollister / Monument near 2301 Monument — Location #: ST1

Wind Speed: Calm (Km/Hr = 1.6 x MPH)) — Direction:

Circle the Applicable Land Use

(Residential / Institutional) — Commercial / Commercial Sensitive — Industrial

Sound Level Meter Model & Serial #	Microphone: Serial #	Pre amp: Serial #	Calibrator Serial #
~~Larson Davis LXT, #4566~~	~~157399~~	~~36017~~	8807
Larson Davis 831, #1644	106012	10109	12540
~~LarsonDavis 831, #1451~~	146528	29542	~~3884~~
Larson Davis 820, #0766	2559	795	

Meter Setting: A-Weighted Sound Level (Slow) — Time of Calibration: 8:35

Location of the Sound Level Meter: (5 feet above Ground surface and over 6 feet from building/reflective surface)

Monitoring Was Conducted: 50 ~~feet from construction~~ / (feet from sensitive receptor)

Type of Equipment Operating: none

Circle one of the Following:

Ongoing Construction — Post-Construction — (Baseline Conditions (Contract))

Allowable Noise Limit: — Duration of Monitoring Measurement: (15 minutes to 1 hour) 20 minutes

(Complete all that Apply)

Active Contract(s) (list all contracts that contribute to measured noise): **C1045**

Complaint Response (Describe: Include Log-in #)

Abatement Follow-up (Describe):

Time Start	Time End	L_{eq}	L_{50}	L_{10}	$L_{1.0}$	L_{max}	Notes:
8:38	8:58	57.9	48.7	60.4	69.8	76.0	No construction equipment or powerline work today. Lmax caused by residential trucks

Sketch/Notes (attach sheets as needed)

See 4/24/19 Map

No equipment operating today

KRONER ENVIRONMENTAL SERVICES, INC.

Nelson Sloan Quarry Restoration Project

Engineer / Technician:	Company: Kroner Environmental Services	Date: 4/24/19
Monitoring Location Address: Tijuana River Valley Regional Park → Monument Rd		Location #: ST2
Wind Speed: 7 MPH (Km/Hr = 1.6 x MPH)	Direction: West	

Circle the Applicable Land Use

Residential / Institutional — Commercial / Commercial Sensitive (recreation) — Industrial

Sound Level Meter Model & Serial #	Microphone: Serial #	Pre amp: Serial #	Calibrator Serial #
Larson Davis LXT, #4566	**157399**	**36017**	**8807**
Larson Davis 831, #1644	**106012**	**10109**	**12540**
LarsonDavis 831, #1451	**146528**	**29542**	**3884**
Larson Davis 820, #0766	**2559**	**795**	

Meter Setting: A-Weighted Sound Level (Slow)

Time of Calibration: 12:50 PM

Location of the Sound Level Meter: (5 feet above Ground surface and over 6 feet from building/reflective surface)

Monitoring Was Conducted: 0 ~~feet from construction~~ / feet from sensitive receptor

Type of Equipment Operating: None

Circle one of the Following:

Ongoing Construction — Post-Construction — Baseline Conditions (Contract)

Allowable Noise Limit:

Duration of Monitoring Measurement: (15 minutes to 1 hour) 20 minutes

(Complete all that Apply)

Active Contract(s) (list all contracts that contribute to measured noise): **C1045**

Complaint Response (Describe: Include Log-in #)

Abatement Follow-up (Describe):

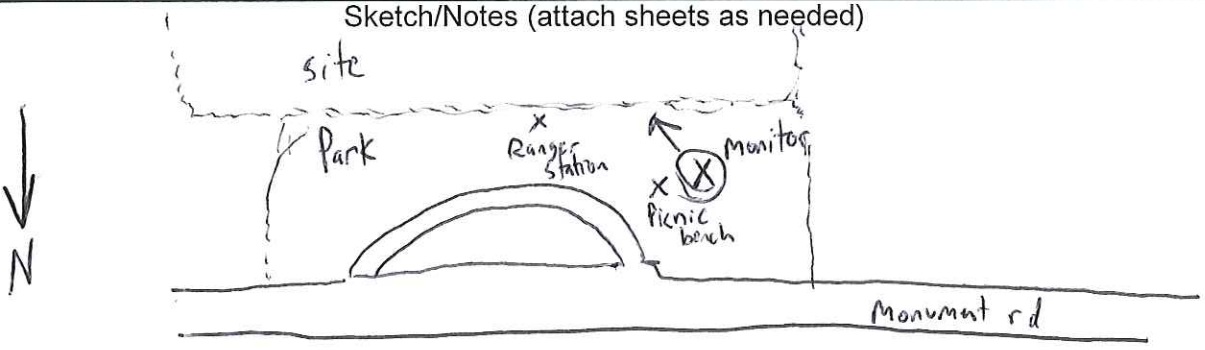
Time Start	Time End	L_{eq}	L_{50}	L_{10}	$L_{1.0}$	L_{max}
13:38	13:58	57.1	55.3	60.4	64.6	70.3

Notes:

Park adjacent to project site.

Ambient noise sources were vehicles on Monument Rd, birds

Sketch/Notes (attach sheets as needed)



KRONER ENVIRONMENTAL SERVICES, INC.

Nelson Sloan Quarry Restoration Project

Engineer / Technician: Drew Polley	Company: Kroner Environmental Services	Date: 4/25/19
Monitoring Location Address: Tijuana River Valley Regional Park - Monument Rd / Ranger Stn		Location #: ST2
Wind Speed: Calm (Km/Hr = 1.6 x MPH))	Direction:	

Circle the Applicable Land Use

Residential / Institutional — Commercial / Commercial Sensitive (Recreation) — Industrial

Sound Level Meter Model & Serial #	Microphone: Serial #	Pre amp: Serial #	Calibrator Serial #
Larson Davis LXT, #4566	157399	36017	8807
~~Larson Davis 831, #1644~~	106012	10109	12540
LarsonDavis 831, #1451	~~146528~~	29542	~~3884~~
Larson Davis 820, #0766	2559	795	

Meter Setting: A-Weighted Sound Level (Slow)

Time of Calibration: 8:35

Location of the Sound Level Meter: (5 feet above Ground surface and over 6 feet from ~~building/reflective surface~~)

Monitoring Was Conducted: 0 ~~feet from construction~~ 4 feet from sensitive receptor

Type of Equipment Operating: none

Circle one of the Following:

Ongoing Construction — Post-Construction — Baseline Conditions (Contract)

Allowable Noise Limit:

Duration of Monitoring Measurement: (15 minutes to 1 hour) 20 Minutes

(Complete all that Apply)

Active Contract(s) (list all contracts that contribute to measured noise): **C1045**

Complaint Response (Describe: Include Log-in #)

Abatement Follow-up (Describe):

Time Start	Time End	L_{eq}	L_{50}	L_{10}	$L_{1.0}$	L_{max}
9:04	9:24	51.8	45.0	55.0	62.1	70.4

Notes: Ambient noise sources: occasional cars on Monument Rd, Ranger Station vehicle, birds

L_{max}

Sketch/Notes (attach sheets as needed)

See map from 4/24/19

KRONER ENVIRONMENTAL SERVICES, INC.

Nelson Sloan Quarry Restoration Project

Engineer / Technician:	Company: Kroner Environmental Services	Date: 4/24/19
Monitoring Location Address: Tijuana River Valley Regional Park - Dairy Mart Rd		Location #: ST 3
Wind Speed: 6 MPH (Km/Hr = 1.6 x MPH))	Direction: West	

Circle the Applicable Land Use

Residential / Institutional Commercial / ~~Commercial~~ recreation Sensitive Industrial

Sound Level Meter Model & Serial #	Microphone: Serial #	Pre amp: Serial #	Calibrator Serial #
Larson Davis LXT, #4566	157399	36017	8807
Larson Davis 831, #1644	106012	10109	12540
LarsonDavis 831, #1451	146528	29542	~~3884~~
Larson Davis 820, #0766	2559	795	

Meter Setting: A-Weighted Sound Level (Slow)

Time of Calibration: 12:50 PM

Location of the Sound Level Meter: (5 feet above Ground surface and over 6 feet from building/~~reflective surface~~)

Monitoring Was Conducted: 0 ~~feet from construction~~ / feet from sensitive receptor

Type of Equipment Operating: None

Circle one of the Following:

Ongoing Construction Post-Construction Baseline Conditions (Contract)

Allowable Noise Limit:

Duration of Monitoring Measurement: (15 minutes to 1 hour) 20 minutes

(Complete all that Apply)

Active Contract(s) (list all contracts that contribute to measured noise): **C1045**

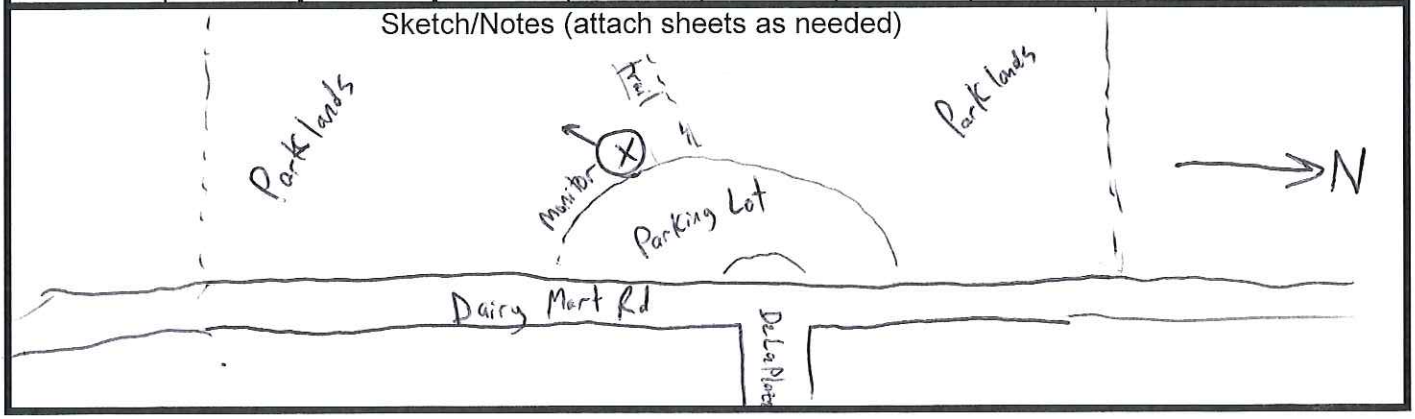
Complaint Response (Describe: Include Log-in #)

Abatement Follow-up (Describe):

Time Start	Time End	L_{eq}	L_{50}	L_{10}	$L_{1.0}$	L_{max}
14:07	14:27	54.2	51.1	57.1	64.1	66.4

Notes: Ambient noise sources: Traffic on Dairy Mart Rd and De La Plaza Rd. Birds

Sketch/Notes (attach sheets as needed)



KRONER ENVIRONMENTAL SERVICES, INC.

Nelson Sloan Quarry Restoration Project

Engineer / Technician:	Company:	Date:
Drew Polley	Kroner Environmental Services	~~9/~~ 4/25/19

Monitoring Location Address: Tijuana River Valley Regional Park - Dairy Mart Rd | Location #: ST3

Wind Speed: 1 MPH (Km/Hr = 1.6 x MPH) | Direction: West

Circle the Applicable Land Use

Residential / Institutional | Commercial / Commercial Sensitive | Industrial

Sound Level Meter Model & Serial #	Microphone: Serial #	Pre amp: Serial #	Calibrator Serial #
Larson Davis LXT, #4566	157399	36017	8807
Larson Davis 831, #1644	106012	10109	12540
LarsonDavis 831, #1451	146528	29542	3884
Larson Davis 820, #0766	2559	795	

Meter Setting: A-Weighted Sound Level (Slow) | Time of Calibration: 8:35

Location of the Sound Level Meter: (5 feet above Ground surface and over 6 feet from building/reflective surface)

Monitoring Was Conducted: 0 ~~feet from construction~~ / feet from sensitive receptor

Type of Equipment Operating: None

Circle one of the Following:

Ongoing Construction | Post-Construction | Baseline Conditions (Contract)

Allowable Noise Limit: | Duration of Monitoring Measurement: (15 minutes to 1 hour) 20 minutes

(Complete all that Apply)

Active Contract(s) (list all contracts that contribute to measured noise): **C1045**

Complaint Response (Describe: Include Log-in #)

Abatement Follow-up (Describe):

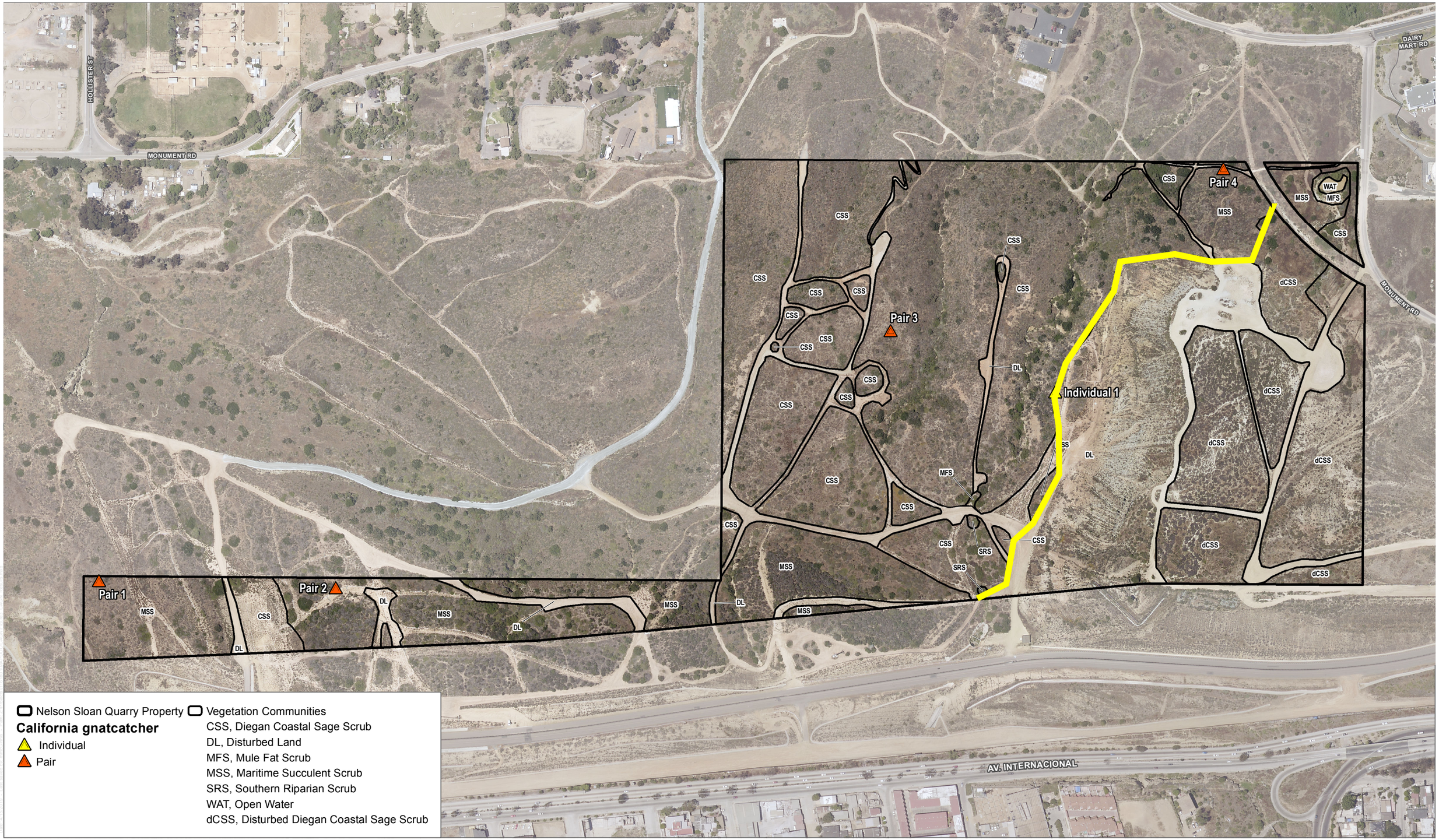
Time Start	Time End	L_{eq}	L_{50}	L_{10}	$L_{1.0}$	L_{max}	Notes:
9:31	9:51	57.9	54.4	61.5	66.8	74.4	Ambient noise sources: traffic at Dairy Mart Rd/ De La Plaza Rd intersection. Lmax due to haul trucks going to nearby Contruction (new border patrol station)

Sketch/Notes (attach sheets as needed)

See 4/24/19 Map

Attachment B

Dudek 2019
Map of Focused California Gnatcatcher Survey Results



SOURCE: SANGIS 2017

DUDEK

0 135 270 Feet

FIGURE 3

Survey Results

Nelson Sloan Quarry Restoration Project - Focused California Gnatcatcher Survey Report

Attachment C

Construction Noise Calculations

Construction Equipment Operation Noise Impact Analysis						
Receptor	**Location**	**Equipment**	**L_{max} @ 50ft dBA[1]**	**Usage Factor%[2]**	**Closest Distance to Receptor ft**	**L_{eq} No Mitigation dBA**
LT1	3250 Glancy Dr.	Dozer	82	40	5800	43
		Excavator	81	40	5800	
		Grader	81	40	5800	
		Scraper	84	40	5800	
LT2	2550 Monument Rd	Dozer	82	40	1900	53
		Excavator	81	40	1900	
		Grader	81	40	1900	
		Scraper	84	40	1900	
ST1	2301 Monument Rd	Dozer	82	40	3450	47
		Excavator	81	40	3450	
		Grader	81	40	3450	
		Scraper	84	40	3450	
ST2	Tijuana River Valley Park Ranger Station	Dozer	82	40	1200	57
		Excavator	81	40	1200	
		Grader	81	40	1200	
		Scraper	84	40	1200	
ST3	Tijuana River Valley Park Dairy Mart Rd Trailhead	Dozer	82	40	5300	44
		Excavator	81	40	5300	
		Grader	81	40	5300	
		Scraper	84	40	5300	
WR1	Gnatcatcher pair observed	Dozer	82	40	400	66
		Excavator	81	40	400	
		Grader	81	40	400	
		Scraper	84	40	400	
WR2	Gnatcatcher individual observed	Dozer	82	40	400	66
		Excavator	81	40	400	
		Grader	81	40	400	
		Scraper	84	40	400	
WR3	Gnatcatcher pair observed	Dozer	82	40	950	59
		Excavator	81	40	950	
		Grader	81	40	950	
		Scraper	84	40	950	

Note:

1 - The loudest and most-used equipment for quarrying operations are included for this assessment.