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20 November 2017

Everett DeLano
DeLano & DeLano
104 West Grand Ave, Suite C
Escondido, CA 92025

SUBJECT: Safari Highlands – Escondido California
Acoustic Review of Draft Environmental Impact Report (DEIR)

Dear Everett:

As requested, we have reviewed the following sections of the Draft Environmental Impact Report (DEIR) for the Safari Highlands Ranch and Citywide SOI Update (dated October 2017).

- Section 2.3 Biological Resources
- Section 2.10 Noise
- Section 2.12 Traffic and Circulation

In summary, the current project noise assessment is incomplete primarily as it does not fully address regulatory requirements and a proper noise survey of the project site and vicinity has not been conducted to establish with confidence baseline conditions. Furthermore, the study has not proposed mitigation measures for identified significant impacts, rather it classifies them as unavoidable and we disagree with such positions for the reasons noted herein.

SECTION 2.3 – BIOLOGICAL RESOURCES

This section identifies many "Special Status" species present on the proposed project site but only identifies one species (California Gnatcatcher) as noise sensitive and noise impacts to other species may also need to be considered. This should include all other bird species, consistent with other relevant guidelines such as Caltrans (*Effects of Traffic Noise and Road Construction on Birds, June 2016*) and possibly other relevant documents.

Noise impacts on the existing wildlife should be assessed as part of an appropriate noise study (see next section) that clearly establishes thresholds of significance for different species and proposes mitigation measures for identified significant impacts.

SECTION 2.10 – NOISE

2.10.1 Existing Conditions

Noise Measurements

This study is incomplete as it has not properly captured existing ambient noise levels in the project site and vicinity. Only short-term noise measurements (10 mins long) were taken, which are insufficient to establish ambient noise conditions and use to address regulatory requirements.

Noise standards in the City of Escondido General Plan are in terms of Ldn and CNEL, which are noise levels averaged over 24-hours and inherently require noise measurements over a minimum 24-hour period. Measurements were only taken during mid-day and do not allow for establishing the full range of noise exposure.

Ambient noise levels are likely very low on the project site away from existing roads and must be documented accordingly and used as the basis of establishing significant impacts and the need for developing appropriate mitigation measures.

Noise measurements are missing at key locations for assessing impact of project noise. These include the project site to establish existing conditions (wildlife), and at the adjacent existing residential property lines set back from existing roads such as those on Sprucewood Ln and Walden Glen.

Measurements should be taken at the receiving property line of noise sensitive uses nearest to the project site, consistent with the City of Escondido General Plan (see Excerpts 1 & 2 attached) and reported with the distance to primary noise sources. The most noise sensitive receiver location appears to be the backyards of those properties facing the proposed new development and access roads, since these areas are likely very quiet and would experience the greatest increase in noise level due to their close proximity to the project.

Some of the measurements locations were in the middle of the street in residential neighborhoods and this is inconsistent with the City of Escondido General Plan and is not an accurate representation of noise levels where people would be.

All data should be reported using the "slow" response setting on sound level meters as required by the City of Escondido Municipal Code and other project regulations, not "fast" response used in the noise survey. Any specific aspects of the noise study that require use of "fast" or "impulsive" instrument settings should be identified, and the proper assessment should be provided.

The noise survey should generally conform to the guidelines in ASTM E1014 (Standard Guide for Measurement of Outdoor A-Weighted Sound Levels) but more importantly address the specific regulatory requirements for this project as described above.

Existing Roadway Noise Levels

While predictions are not a substitute for actual measurements of traffic noise, they can be successfully used in conjunction with noise measurements for calibration and to predict future increases in traffic noise; however, this has not been done in this study properly.

2.10.2 Regulatory Framework

This section is missing noise limits to address impacts to wildlife (see our comments to Section 2.3 above). It also misses the following noise regulations, which would be relevant to the residential and zoo properties south of the project area, which will not be annexed into the City of Escondido as part of this project. If not, this should be stated as such.

- City of San Diego – Municipal Code Chapter 5, Article 9.5
- San Diego County Noise Ordinance – Chapter 4, Section 36.410

2.10.4 Analysis of Project Effects

Threshold a – Violations of existing noise regulations

This assessment only considers traffic noise on existing roadways and should be expanded to include new roads proposed for this project, other sources of noise associated such as the proposed additions to the existing pump station (Page 48 of Appendix 1.1) and any impacts to the existing wildlife (see section 2.3 above).

Traffic noise analysis should be based on measured noise levels at the property line of sensitive receivers as described above (Section 2.10.1) and required by the City of Escondido General Plan. The current analysis appears to be based on traffic noise predictions only and would need to be validated through noise measurements. Furthermore, the traffic noise assessment does not include new roads proposed for this project, whose addition would result in a large noise increase given these areas are currently undeveloped.

This current study concludes traffic noise as part of the project is "significant and unavoidable" but only considers a limited range of options for mitigation and finds some of them as not feasible. Some possible options to reduce traffic noise levels include grading or roadway alignment, depressing new roadways or surrounding roads with earth berms or sound walls. Additional access roads to the new development could possibly redirect some traffic volume and reduce noise along the main entrance road. Other methods of reducing traffic noise may include use of rubberized asphalt pavement; however, this is generally use for reducing tire noise and mostly for vehicles traveling at high speeds.

All such options would need to be properly analyzed as part of this study and provided as mitigation to reduce impacts to less than significant as part of the EIR process. Furthermore, most of these options are identified in the project Specific Plan (Page 54, Paragraph 1) but are not assessed as part of this noise study.

Regulations for construction noise are discussed in *Threshold d* below.

Threshold b – Excessive ground-borne vibration

This study identifies blasting will be used on this project and would be the primary source of construction vibration but only proposes deferred analysis for mitigation which is not consistent with CEQA that requires such studies be part of the EIR process and used to develop mitigation measures for identified significant impacts.

Mitigation measures should also identify affected structures, develop and implement a project-specific vibration monitoring plan, particularly during blasting, to ensure safe limits at nearby sensitive receptors are met and procedures are in place to be followed when vibration limits are exceeded. This is also recommended by Caltrans guidelines for construction vibration (*Transportation and Construction Vibration Guidance Manual, September 2013*).

Given the proximity to existing residential structures and wildlife, limited blasting should be undertaken as part of the study and used to develop appropriate mitigation as it is conceivable that alternative construction methods may be warranted to control vibration levels.

Threshold c – Substantial permanent noise increase

See comments for Threshold a above and this assessment should also consider existing ambient noise levels based on representative 24-hour measurements that would be part of a proper noise study (see section 2.10.1 above).

Threshold d – Substantial periodic noise increase

Similar to construction vibration (Threshold b above), the construction noise assessment appears to be generic and not based on the actual construction plan that can then be used to establish a temporary controls noise specification. Such document once developed would be used in the project bidding process and depending on restrictions will also affect project construction costs.

Furthermore, the generic analysis is incomplete as it does not include noise from construction related traffic, it does not assess noise and vibration associated with the proposed operation of a rock crushing/batch plant or any other onsite production activities.

The noise assessment should consider construction traffic on existing roads (primarily Rockwood Rd.) and new roads proposed for this project, since these would be adjacent to the existing residential properties.

The study states rock crushing will take place during the site preparation; however, noise from this activity is not properly assessed and predicted noise levels are likely higher than reported in Table 2.10-11. Rock crushing (also a cement batch plant on-site) and other material processing activities are typically loud and would likely run for extended periods of time and require a specific study upfront using specific equipment and plans.

Furthermore, some predicted construction noise is up against the noise limit even with mitigation (within 0.1 dB). This implies the criteria would still be exceeded since this difference is most likely within the margin of error for these calculations.

This assessment should also address noise impact on existing wildlife on the project site, see Section 2.3 above and fundamental to that is establishing clear noise and vibration thresholds of significance to different species in the project area and vicinity.

Mitigation Measure NOI-2

Construction noise and vibration monitoring should be included in this measure to ensure regulatory noise limits continue to be met throughout construction and to provide a quantifiable record in the event of complaints. This measure should also establish protocols for mitigation if regulatory noise or vibration limits are exceeded such time restrictions, use of sound barriers and possibly others.

This measure recommends placing rock crushing equipment minimum 500 feet away from residences but does not appear to be based on any noise analysis and may still exceed regulatory limits. A specific and complete noise study should be carried out as described in the previous section and mitigation measures developed and implemented as part of the environmental review and approval process.

Mitigation Measure NOI-3

This measure recommends a generic noise barrier to control construction noise, but it needs to be a based on a project-specific study and include proposed barrier locations, heights and extents. This is essential since noise attenuation provided by a barrier varies greatly depending on barrier height and location of source, receiver and barrier and topographical parameters.

SECTION 2.12 – TRAFFIC AND CIRCULATION

This study claims Safari Highlands residents will be prohibited from using Zoo Road but provides no plan for enforcing this policy. This is critical to address since Zoo Road was not included in the noise study (see Section 2.10.4 above) and could potentially result in a significant noise impact. We understand this is currently a public access road that was also used for the environmental noise survey.

SECTION 3.2 – CUMULATIVE IMPACT ANALYSIS

This study has not provided a quantitative assessment of the cumulative change in noise levels due to the project. The study cites deferred analysis, examples are on Page 28 Paragraph 2, Page 43 Paragraph 4 and Page 54 Paragraph 1. Specific mitigation should be based on a proper noise study and assessment against the City of Escondido General Plan and other relevant requirements and could then be reviewed by others.

* * *

I trust that you will find this information useful, but please do not hesitate to contact our office if you require further assistance.

Sincerely,

PAPADIMOS GROUP

Nathan Sibon
Staff Consultant

Chris Papadimos
Principal

Enclosures: Definitions of Common Acoustical Terms
Relevant excerpts from the City of Escondido General Plan

DEFINITIONS OF COMMON ACOUSTICAL TERMS

Decibel, dB – A unit describing the amplitude of sound, defined as 20 times of the logarithm of the ratio of the sound pressure measured to the reference pressure (20 μPa).

A-weighted Sound Level, dBA – The sound pressure measured using the A-weighting filter network that de-emphasizes the very low and very high frequency components of the sound spectrum in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.

Ambient Noise – The sound level in a given environment usually comprised of many sources in many directions near and far with no particular sound dominant. It is of the defined as L_{99} or the noise level exceeded 99% of the time.

Background Noise - The total noise from all sources other than the source of interest. It is often defined as L_{90} or the noise level exceeded 90% of the time.

Community Noise Equivalent Level, CNEL – The average A-weighted noise level in a 24-hour day, obtained after adding 5 dB to evening hours (7:00 pm to 10:00 pm) and 10 dB to sound levels measured in the night (between 10:00 pm and 7:00 am).

Day/Night Noise Level, L_{dn} (or DNL) – The average, 24-hour A-weighted noise level, obtained after adding 10 dB to levels measured at night (10:00 pm to 7:00 am).

Integrated or Equivalent Noise Level, L_{eq} – The energy average A-weighted noise level during the measurement period.

Sound level meter - An instrument that measures sound in dB. Various features are incorporated into such instrument including frequency bands, integration of sound over time and display of average, minimum, and maximum levels.

Sound pressure level - the ratio, expressed in decibels, of the mean-square sound pressure level to a reference mean-square sound pressure level that by convention has been selected to approximate the threshold of hearing (0.0002 μbar)

Frequency – The number of times per second that the oscillation of a wave of sound or that of a vibrating body repeats itself, expressed in Hertz (Hz).

Octave band - The frequency range of one octave of sound frequencies. The upper limit is always twice the frequency of the lower limit. Octave bands are identified by the geometric mean frequency or center between the lower limit and the upper limit.

Relevant excerpts from the City of Escondido General Plan – Community Protection Element

Figure VI-13

Noise Measurement Guidelines:

1) Noise measurements in residential areas should generally be applied at ten feet from the backyard property line. However, in certain cases such as on estate lots where backyards are typically very large, the 60 dBA goal could be applied approximately one half the distance between the back of the main residential structure and the rear property line.

2) The outdoor standard should not normally be applied to balconies or patios associated with residential uses.

3) *Noise impacts of proposed projects on existing land uses should be evaluated in terms of potential for adverse community response, based on a significant increase in existing noise levels. For example, if an area currently is below the maximum normally acceptable level, an increase in noise up to the maximum should not necessarily be allowed. Projects increasing noise levels by 5 dB or greater should be considered as generating a signify-cant impact and should require mitigation.

Figure VI-14

Exterior Incremental Environmental Noise Impact Standards for Noise-Sensitive Uses (dBA)

Residences and Buildings Where People Normally Sleep[a]		Institutional Land Uses with Primarily Daytime and Evening Uses[b]	
Existing L_{dn}	Allowable Noise Increment	Existing Peak Hour L_{eq}	Allowable Noise Increment
45	8	45	12
50	5	50	9
55	3	55	6
60	2	60	5
65	1	65	3
70	1	70	3
75	0	75	1
80	0	80	0

Noise levels are measured at the property line of the noise-sensitive use.

a. This category includes homes, hospitals, and hotels where a nighttime sensitivity to noise is assumed to be of utmost importance.

b. This category includes schools, libraries, theaters, and churches where it is important to avoid interference with such activities as speech, meditation, and concentration on reading material.

SOURCE: Federal Transit Administration, Transit Noise Impact and Vibration Assessment, May 2006

CHRISTOPHER PAPADIMOS, INCE
PRINCIPAL

CHRISTOPHER PAPADIMOS is an acoustical consultant with over 28 years of professional experience in measuring, assessing and developing mitigation strategies for projects with noise and vibration requirements.

Since 1989, he has worked continuously on a large number of projects for various types of facilities involving environmental acoustics, noise and vibration control for mechanical systems, structural noise and vibration, and architectural acoustics. Projects include residential and commercial buildings, institutional and government buildings, worship and performing spaces, and transportation and industrial facilities.

Mr. Papadimos has authored numerous acoustical studies for various project types. Transportation noise and vibration studies include freeways and rail systems, road widening and improvement projects, and airport facilities. Other studies include residential, commercial and mixed use developments, and various types of industrial facilities.

Mr. Papadimos favors a practical approach of early integration of acoustical requirements into each project. He is experienced in establishing acoustical criteria, undertaking site and building surveys, developing and implementing mitigation strategies, reviewing construction methods and providing options for remedial solutions. He has participated on research projects, provided expert testimony and remains actively involved in the development of technical standards and guidelines.

PROFESSIONAL ENGAGEMENTS

- Papadimos Group – Founding Principal (January 2005 to present)
- Cerami & Associates – Associate Principal (April 2004 to December 2004)
- Shen Milsom & Wilke – Associate (May 2001 to March 2004)
- Illingworth & Rodkin – Senior Consultant (January 1999 to May 2001)
- Frank Hubach Associates – Consultant (May 1995 to December 1998)
- Illingworth & Rodkin – Consultant (July 1989 to May 1995)

EDUCATIONAL BACKGROUND

- University of California at Los Angeles , B. Sc. Mechanical Engineering, (1989) Magna Cum Laude, Departmental Scholar, Dean's and Honor Lists
- Airport Noise Planning using INM Computer Modeling, Engineering Program, University of Texas at Austin, 1993

PROFESSIONAL SOCIETIES

- ASHRAE – Past Chair for Technical Committee and Member
- Institute of Noise Control Engineering – Full Member

PROJECT EXPERIENCE (Partial List)

- 201 Folsom (LUMINA) – San Francisco, CA – Comprehensive noise control for large mixed-use development to address local code.
- Alameda Theatre – Alameda, CA – Acoustic consulting for historic facility renovation to address noise emissions to surrounding areas.
- BART Subway Extension to SFO, Colma, CA - Noise and vibration consultant and expert witness to the Coalition of Colma Cemeteries.
- Bay Bridge Pile Demonstration Project, San Francisco, California – Participated on environmental studies for the eastern span bridge replacement project.
- Black Dog Amphitheater, Burnsville, MN – Acoustic studies for new amphitheater to the surrounding communities
- Boot & Shoe Restaurant – Oakland, CA – Expert witness and peer review for restaurant remodel that included outdoor dining next to residential.
- Cal Memorial Stadium – Berkeley, CA – Acoustic consulting and expert witnessing for large renovation project to address community concerns.
- Calistoga Community Pool – Expert witness and analysis for new community pool project to limit noise emissions to surrounding residential areas.
- Caltrans Soundwall Studies – Participated on before and after noise studies to study the effectiveness of sound barriers under various weather conditions.
- Castro Fountain – San Francisco, CA – Noise remediation for rooftop mechanical equipment for ice cream parlor for compliance with local code.
- Charles Krug Winery – St. Helena, CA – Acoustic consulting for the renovation of the historic Carriage House that included special event and tasting areas.
- Coca Cola Distribution Facility – San Jose, CA – Provided noise control for air compressor installation to comply with local code.
- Davies Vineyards Winery – St. Helena, CA – Provided acoustic review to address among others activities from a rooftop patio and amplified music.
- Emerystation Center - Emeryville, CA – Provided acoustic consulting services for new buildings and tenant improvement projects for code compliance.
- Genentech Campus – South San Francisco, CA – Acoustic consulting for Hilltop Office Building 35, Employee Center, Central Plant Facility.
- Golden Gate Recreation Center – Oakland, CA - Noise remediation for rooftop mechanical equipment for community center to comply with local code.
- Hakone Gardens – Saratoga, CA – Completed acoustic study for event center to comply with local noise conditions and served as expert witness.

- Harold Smith & Sons – St Helena, CA – Completed acoustic study for materials handling and cement mixing facility that included noise control options.
- Lagunitas Country Club – Ross, CA – Measured and assessed club noise to the surrounding residential community for environmental compliance.
- Macae Energy Center – Environmental noise studies for power generation complex in the rain forest to comply with World Bank regulations - Macae, Brazil
- McCarran International Airport - Las Vegas, NV - Sound insulation studies for mixed-use development projects near the airport.
- Mercy Retirement and Care Center – Oakland, CA – Noise control for backup diesel generator to comply with local code.
- Oakland International Airport - Participated in sound insulation review studies for existing residential developments near the airport.
- Rotten Robbie – Sebastopol, CA – Peer review of car wash noise control options.
- Safari Kid – Hayward, CA – Acoustic consulting for outdoor play area for daycare facility and develop mitigation for compliance with local code.
- St. Mary's Medical Center – San Francisco, CA – Community noise for facility mechanical equipment for surrounding residential areas.
- Stanford Hospitals and Clinics – Provided acoustic and vibration consulting services for the hospital replacement and existing hospital renovation projects.
- Stanford University - Palo Alto, CA - new construction and renovation projects including Old Chemistry, James H Clark Center, Lucas MRS Center, Crown Hall.
- Suprema Meats – Oakland, CA – Expert witness for facility noise remediation
- Sweetwater Saloon – Mill Valley, CA – Noise mitigation for nightclub expansion and renovation to limit noise emissions to surrounding areas.
- UGGPP Energy Center- San Francisco International Airport – Noise studies and attendance to energy commission hearings for new 1200 MW power plant.
- Wallingford Energy Center - Wallingford, Connecticut - 250 MW Simple Cycle Power Facility - comprehensive acoustical services
- Warren Hall Seismic Retrofit, California State University at Hayward – Conducted noise and vibration feasibility studies for the seismic retrofit of this building.
- Westside Road Winery – Healdsburg, CA – Prepared acoustic study for facility expansion to include event center to address potential environmental impacts.
- UCSF Parnassus and Mission Bay Campuses, San Francisco, CA – Acoustic and vibration consulting for multiple new and existing research facilities.
- Vineyard 29 – St. Helena, CA – Noise control for new winery to address property line conditions and comply with local code.