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MEMORANDUM

To:	Tierra del Sol Solar Farm LLC; Rugged Solar LLC
From:	Jonathan V. Leech, Senior Environmental Specialist/Acoustician Mike Greene, Environmental Specialist/Acoustician
Subject:	Response to Selected Comments (Noise): Volker / Backcountry Against Dumps, January 15, 2015; E-Coustic Solutions, January 15, 2015
Date:	January 28, 2015
Attachment:	Attachment A, Resumes

On January 15, 2015, Stephan C. Volker submitted comments on behalf of Backcountry Against Dumps and Donna Tisdale to the San Diego County Planning Commission on the Final Programmatic Environmental Impact Report for Soitec Solar Development Project, SCH No. 2012-121-018.

With respect to noise, Mr. Volker provides the following comments on Page 16:

> *C. NOISE*
>
> *The FPEIR's amended discussion of the Project's low-frequency noise and infrasound ("ILFN") emissions still fails. FPEIR 2.6-59 to 2.6-60; FPEIR Response to Comments O10_63 to O10_65. The conclusion that "no health effects are anticipated to occur due to low frequency noise associated with the Proposed Project" is based entirely on a court decision that is currently being appealed and is therefore not final, and subject to change. FPEIR 2.6-60. The County's reliance on this non-scientific conclusion ignores the growing body of evidence that ILFN impacts human health.*

Response: Our conclusion that no adverse health effects are anticipated to occur from infra-low frequency noise (ILFN) is not entirely or even heavily based upon a current court case (THE PROTECT OUR COMMUNITIES FOUNDATION, BACKCOUNTRY AGAINST DUMPS, and DONNA TISDALE vs. SALLY JEWELL, et al. and TULE WIND LLC, CASE NO. 13CV575 JLS (JMA). That case stated that the Bureau of Land Management "was not required to accept Plaintiffs' opinion that an assessment of wind turbine noise must give special prominence to low-frequency sound, or that a "G-weighted" scale is more appropriate for measuring wind turbine noise than other existing scales." We did not rely upon the Judge's decision, but instead upon a

body of internationally published medical studies on the health effects of IFLN which does not evidence a proven correlation between physiological symptoms and ILFN below approximately 110 dBG. We have provided accurate references for several countries that have adopted a guideline threshold for audibility of ILFN at 85 dBG, which we believe is a defensible threshold to employ in assessing potential ILFN emissions from the Soitec project.

Furthermore, the FPEIR completely fails to analyze the ILFN impacts from the newly added energy storage system that was not discussed in the DPEIR. FPEIR AIS.0-1, AIS.0-12 to AIS.0-14; FPEIR AIS 3 (Addendum: Acoustical Assessment Report), pp. 1-13. Acoustical engineer Rick James details additional County failures to analyze noise impacts from the energy storage system in his January 15, 2015 "Comments on Soitec Solar Acoustical Assessment Reports for Tierra del Sol and Rugged Solar Related to Proposed Energy Storage Facility," which comments are incorporated fully by reference herein. In order to foster informed decision making, as CEQA requires, these impacts must be analyzed in detail, and the EIR recirculated for public review. CEQA Guidelines §§ 15088.5, 15144; Vineyard, 40 Cal.4th at 428.

Response: Please refer to the detailed response we provide below to the referenced portions of the Ecoustic comment letter.

Additionally, the noise analysis focuses solely on vibratory pile-driving. FPEIR 2.6-25 to 2.6-27, 2.6-32 to 2.6-33, 2.6-37 to 2.6-39, 2.6-41 to 2.6-44, 2.6-50 to 2.6-51. However, as discussed below, the FPEIR is inconsistent regarding the type of pile-driving that will be used – conventional or vibratory. Indeed, the FPEIR admits that "conventional pile-driving would be appropriate" in some instances. FPEIR 1.0-13; see also FPEIR 9.0-19 (vibratory or conventional pile-driving will be used). Since the FPEIR proposed the use of conventional pile-driving in some instances, it must analyze the impacts of that activity.

Response: A construction design noise screening analysis was performed for solar tracker mast installation, which concluded that conventional pile driving equipment could have the potential to cause the San Diego County construction noise 8-hour average limit to be exceeded where the property line of a parcel with occupied residence is located within 160 feet of the conventional pile driving. Consequently, vibratory pile driving is proposed to be used for mast installation, as indicated in the detailed construction description in the Noise Section (2.6) of the EIR. With respect to the Project Description section of the EIR (FPEIR 1.0-13), the phrase "*conventional pile driving would be appropriate in some instances*" refers to pile driving activity within interior portions of the TDS or Rugged site which are well in excess of 160 feet from the property line of a parcel with occupied residence.

On Page 33 of his letter, Mr. Volker comments:

> *The FPEIR's responses to comments are often conclusory, unsupported by fact, and contradicted by other sections of the FPEIR. For example when responding to a comment regarding the impacts of the Project's pile-driving on adjacent property, including foundations and wells, the County claims that "pile-driving is not proposed or anticipated for the installation of posts (pylons) to support the trackers. Pilot holes would be drilled for the posts, and then the posts would be installed using a vibratory driver which causes much less noise or vibration than a pile-driver." FPEIR Response to Comments I101-5 to I101-6, Comment I101-10. Yet the FPEIR states elsewhere that "conventional pile-driving would be appropriate" in some instances. FPEIR 1.0-13; see also FPEIR 9.0-19 (vibratory or conventional pile driving will be used), FPEIR Response to Comments I32_9 (same). The FPEIR neither estimates the quantity of pylons that will be installed conventionally, nor examines the noise impacts of this admittedly foreseeable Project activity. Instead, it studies only the noise impacts for vibratory pile-driving and dismisses comments concerned about the noise of conventional pile-driving, which will occur as part of the Project.*

Response: Please refer to the response immediately above. While in one occurrence the Project Description (FPEIR 1.0-13) indicates "conventional pile-driving would be appropriate in some instances" the detailed description of project construction activities and techniques found in the Noise Section (2.6) explicitly states that a vibratory pile driver will be employed to install the tracker masts. From a noise and vibration standpoint, it would not be inappropriate to use a conventional pile driver within interior portions of the Rugged and TDS sites where distances to adjacent property lines containing an occupied residence would be well over 160 feet; however, the applicant is not proposing to use a conventional pile driver for tracker mast installation. Consequently, it is unnecessary and inappropriate to speculate on the possible number of pylons that might be installed using a conventional pile driver.

On January 15, 2015 E-Coustic Solutions (Richard P. James) submitted *Comments on Soitec Solar Acoustical Assessment Reports for Tierra Del Sol and Rugged Solar Related to Proposed Energy Storage Facility.* The comments all pertain to noise, and are presented below with responses.

1. *Deficiency 1: "There is no discussion of low frequency or infrasound emissions, whether tonal or broadband. Further, no detailed spectral information is provided for the audible frequency range that would permit independent confirmation that the HVAC units do not produce tones or beat frequencies from the interaction of 160 similar HVAC units."*

Response: Although Heating, Ventilation and Air Conditioning (HVAC) equipment has, on rare occasions, been linked to complaints related to infrasound/low-frequency sound, the only such cases found have been limited to faulty (i.e., improper vibration isolation or which generate large turbulent fluctuations into the space being cooled[1]) HVAC installations in residential or other applications, resulting in localized complaints within the dwellings in which the units were installed. This project would not result in such effects because the HVAC units would be used for the storage modules and would have no mechanical connection to inhabited dwellings, and furthermore would be located a minimum of 160 feet away from the property line of any parcel containing such dwellings.

2. *Deficiency 2: "New documents do not address the 40 db CNEL that is appropriate for the proposed Facility. Review of the same documents as in Deficiency 1 shows that the predicted sound levels along the project boundaries will be 40 dBA or higher. Applying the normalization factors in the CNEL procedure to account for a community with low residual sound levels and no prior experience with the noise results in a limit of 45 dBA CNEL not 60 dBA CNEL. The new reports do not address CNEL in any way, and older reports use a limit of 60 dBA CNEL which is appropriate for more suburban and urban communities, not a small desert community.*

Response: Mr. James is evidently not familiar with the County of San Diego Noise Ordinance (San Diego County Code of Regulatory Ordinances Title 3, Division 6, Chapter 4, Sections 36.401-36.435) or General Plan Noise Element. Given his practice is located in Michigan, a lack of familiarity with San Diego regulations is understandable. According to the noise ordinance, operational noise from mechanical equipment is restricted on the basis of hourly average ($L_{eq\ hour}$) noise level and not CNEL. As indicated in the Dudek analysis of the energy storage system, the maximum allowable daytime sound level at the adjacent property line from mechanical equipment is 50 dBA $L_{eq\ hour}$ while the night-time limit is 45 dBA $L_{eq\ hour.}$ The combined operation noise from all project components was evaluated and compared to these criteria; with identified noise control techniques the project would meet the more stringent 45 dBA $L_{eq\ hour}$ night-time limit. If this sound level is present uniformly throughout 24-hours, it would equate to a CNEL value of 52, which is well below the Noise Element guideline of 60 dBA CNEL for exterior living area exposure for new noise-sensitive land uses (i.e., residential).

[1] Roberts, Cedric. November 2004. ECOACCESS GUIDELINE FOR THE ASSESSMENT OF LOW FREQUENCY NOISE. Environmental Operations, Integrated Assessment, Queensland Environmental Protection Agency, 160 Ann Street, Brisbane, Queensland, Australia 4002. Proceedings of ACOUSTICS 2004.

3. *Deficiency 3: "As noted in Deficiency 1, the AIS-0 and AIS-3 documents do not address the potential for infra (0-20Hz) and low frequency (20 to 200Hz) emissions from the HVAC units or any other noise sources related to the storage facility."*

Response: Comment noted. Please see response to Deficiency 1, above.

> *Deficiency 3, continued: "Measuring infrasound using an outdoor test location is extremely difficult. This is primarily a result of the test equipment microphones responding to almost any air movement in a manner that produces false high readings. The summary table of dBG readings at selected test sites implies that the dBG values are lower near an operating solar facility than they are at a test location located distant from such noise sources. The report notes that wind speeds at the ambient test site were 5mph. Winds at that speed will produce false positive (higher) sound measurements due to the microphone responding to the wind movement in spite of any type of windscreen, including the large oversized wind screens…Ambient infrasound measurements reported in my studies and in the work of others shows that infrasound levels in the range of 40 to 50 dB are representative of rural communities without active infrasound noise sources. Thus the conclusion that the contribution from the inverters and other noise sources at the test site are negligible when compared to the ambient ILFN is not supported by the data presented in the report."*

Response: The measurements demonstrate that, indeed, outdoor infrasound noise measurements can be strongly influenced by even relatively light winds. Wind motion is in fact a documented source of infrasound, and the facility is located outdoors; consequently an outdoor measurement is entirely appropriate and accurate in order to assess the behavior and influence of facility noise within the infra-low frequency range with respect to the existing environment in which it is located. The fact that the onsite G-weighted noise levels were lower than offsite noise levels is due in no small part to the fact that windspeeds were calmer (noted as ranging from approximately 1-3 miles per hour) than later in the day, when the ambient noise measurement was conducted (during still relatively light wind conditions). Nonetheless the onsite and fenceline measurements show that the noise levels from the subject equipment were low, whether using the G, A or C-weighting networks.

> *Deficiency 3, cont'd: "The infrasound study report states that other countries use 85 dBG as a limit for acceptability using Denmark and Australia as examples. Denmark does not use 85 dBG for either industrial or wind turbine noise… Australia has a mix of noise regulations that limit noise sources. Most, if not all, of those regional regulations are dBA limits. This author is in close contact with several Australian acousticians and is not aware of any regulations that limit infrasound and especially any that limit infrasound to 85 dBG."*

Response: Quoting from LOW FREQUENCY NOISE AND INFRASOUND ASSOCIATED WITH WIND TURBINE GENERATOR SYSTEMS, A LITERATURE REVIEW (Ontario Ministry of the Environment RFP No. OSS-078696, Ontario Ministry of the Environment, December 10, 2010): 4.3.1 Denmark; Jorgen Jakobsen of the Danish Environmental Protection Agency describes general purpose Danish guidelines on environmental low frequency noise and infrasound in Jakobsen (2003). The paper indicates that "an environmentally acceptable infrasound level must be below the hearing threshold", and describes a criterion curve which is 10 dB below the average threshold data, to reflect possible individual differences. In order to simplify the comparison, the Danish guideline uses a recommended G-weighted sound level (ISO 7196:1995) of 85 dBG."

Quoting from MEASUREMENT AND LEVEL OF INFRASOUND FROM WIND FARMS AND OTHER SOURCES, Chris Turnbull, Jason Turner and Daniel Walsh: " A common audibility threshold from the range of studies is an infrasound level of 85 dB(G) or greater. The audibility threshold limit of 85 dB(G) is consistent with other European standards and studies, including the UK Department for Environment, Food and Rural Affairs threshold developed in 2003, the UK Department of Trade and Industry study, the German Standard DIN 45680 and independent research conducted by Watanabe and Møller [6].

Quoting from INFRASOUND LEVELS NEAR WINDFARMS AND IN OTHER ENVIRONMENTS, T Evans, J Cooper & V Lenchine, Environment Protection Authority, Adelaide South Australia 5001: "There are no widely accepted assessment criteria for infrasound. Normally, criteria that do exist have been proposed for infrasound and very low frequency noise based on the threshold of perception. For example, ISO 7196 states that sound pressure levels below 90dB(G) will "not normally be significant for human perception". Andresen and Møller (1984) proposed a criterion of 95dB(G) based on the onset of annoyance from perceptible infrasound.

In Australia, the Queensland Department of Environment and Resource Management's (DERM) Draft ECOACCESS Guideline – Assessment of Low Frequency Noise recommends an internal noise limit of 85dB(G) for dwellings, consistent with that recommended in Denmark (Jakobsen, 2001). This Queensland Guideline has remained in draft form and has not been formally released."

Sincerely,

Mike Greene
Environmental Specialist/Acoustician

Jonathan V. Leech
Senior Environmental Specialist/Acoustician

ATTACHMENT A

Resumes

ATTACHMENT A
Resumes

Mike Greene, INCE – Environmental Specialist/Acoustician

Mike Greene is an environmental specialist/acoustician with more than 25 years' professional experience in acoustical analysis and noise control engineering. Mr. Greene has conducted and participated in noise and vibration analyses for hundreds of transportation, commercial, industrial, and residential developments throughout California and the United States.

EDUCATION

University of California, San Diego
BS, Applied Mechanics, 1985

CERTIFICATIONS

Board Certified, Institute of Noise Control Engineering (INCE Bd. Cert.)

County of San Diego-approved

PROFESSIONAL AFFILIATIONS

Transportation Research Board, ADC40 subcommittee

As a project or task manager, Mr. Greene has conducted noise studies for industrial and commercial facilities, ranging from hospitals to manufacturing plants to super-speedway facilities. He is experienced in the modeling of existing and future roadway noise impacts using the Federal Highway Administration's Traffic Noise Model (TNM®) and is experienced with the use of both SoundPLAN and CadnaA, computer software programs for prediction and assessment of noise levels in the vicinity of industrial facilities and other noise sources such as roadways, railways and airports.

PROJECT EXPERIENCE

Development

Pacific Landing Acoustical Study, Murrieta, California. Provided comprehensive acoustical consulting services for the proposed residential apartment development project, to be located adjacent to the I-215 freeway in Murrieta. The proposed project consists of thirty-three multi-family apartment structures. The analysis of noise included an exterior noise evaluation, and exterior to interior noise assessment, of existing and future noise levels calculated to occur at exterior living areas and building facades of the Pacific Landing property. Evaluation of short-term, temporary, noise levels generated from project construction was also addressed as well as noise generation from proposed exterior mechanical equipment (i.e, ground or roof-mounted HVAC packages), evaluated at the nearest noise-sensitive property line.

Additionally, the study included an analysis of interior noise isolation between living units and between public areas and living units, in compliance with California State Title 24 (Noise Insulation) and City of Murrieta Building Code requirements.

Sunroad East Harbor Island Hotel Draft Environmental Impact EIR and Port Master Plan Amendment, Port of San Diego, San Diego, California. Served as task manager to conduct a noise analysis that included noise measurements, on-site and off-site traffic and construction noise impact assessment, in addition to other on-site operational noises, such as Heating, Ventilation, and Air Conditioning (HVAC), parking lots, etc., and effects from nearby San Diego International Airport. The results of the analysis were summarized in a technical report and in the noise section of the EIR.

Rider Distribution Warehouse Technical Studies and EIR, Riverside County, California. Responsible for noise measurement, analysis, and reporting of potential effects on the noise environment from the project. Construction noise (which included potential rock blasting) and operational noise from warehouse and truck operations were addressed for this project which was located near a nature preserve area and residences.

Tejon Mountain Village EIR, Tejon Ranch Company, Tejon, California. Conducted the noise analysis for the EIR for Tejon Mountain Village, a proposed resort community located near the Grapevine, in northern Los Angeles County. Noise measurements of existing ambient noise levels were conducted in the vicinity of the Interstate (I-) 5 freeway as well as in the more remote portions of the project site. Traffic noise was modeled using the TNM® noise model. Additionally, potential for noise impacts from a distant sand and gravel mine was assessed, as well as from construction noise of the project itself.

Coronado Yacht Club Redevelopment and Expansion EIR, Port of San Diego, California. Served as noise task manager to provide guidance and oversight of the noise analysis and reporting of results for the proposed improvements to the Coronado Yacht Club.

San Diego Convention Center EIR, Port of San Diego, California. Served as noise task manager to provide guidance and oversight of the noise analysis and reporting of results for the proposed expansion of the San Diego Convention Center. Issues included potential noise effects from construction activities as well as proposed outdoor events overlooking the harbor and Coronado Island residents.

San Pedro Waterfront EIS/EIR, Port of Los Angeles, Los Angeles, California. As noise task manager, was responsible for the successful completion of the noise analysis. Managed and supervised the noise measurements, modeling, analysis and results reporting. Primary issues of concern included potential effects from traffic and construction noise.

Wilmington Waterfront EIR, Port of Los Angeles, Los Angeles, California. Responsible for the successful completion of the noise analysis for this complex project. Conducted and supervised the noise measurements, modeling, analysis and results reporting, which involved analysis of potential effects from traffic, freight rail, light rail, industrial and construction noise.

Education

EIR for Campus Master Plan and Student Housing, California State University, Dominguez Hills, Carson, California. Responsible for the completion of the noise analysis and reporting for the project. Supervised the noise measurements, modeling, analysis and results reporting, which involved analysis of potential effects from traffic, on-campus facilities, and operations and construction noise.

Multiple School Projects, Los Angeles Unified School District, Los Angeles, California. Noise analyses were conducted for several proposed school construction projects as part of an on-call environmental consulting contract for the district. Noise studies were conducted for L.A. Unified School District High Schools 13, 9, and 12. The analyses included noise measurements of ambient conditions and traffic noise impact analysis to estimate potential noise effects at both existing noise-sensitive land uses and proposed on-site receptors. Additionally, noise during construction and operation (such as from school

athletic fields and stadiums) was assessed. The results of the noise studies were summarized in noise technical reports.

Energy

El Segundo Power Redevelopment Project, NRG/Dynegy, El Segundo, California. Conducted the noise analysis for a proposed 630-megawatt (MW) power plant. Project would replace two aging power units with a newer, more efficient combined-cycle (combustion turbines and steam turbine) plant. Responsible for the preparation of the noise analysis, a section of the project's Application for Certification, response to comments, and oral and written testimony before the California Energy Commission.

Weymouth Filtration Plant Solar Project, Metropolitan Water District, La Verne, California. Conducted the noise study for the Initial Study/Mitigated Negative Declaration (IS/MND) for this project. The primary issue with respect to noise from the project was potential effects at nearby residences and other land uses from construction activities associated with the proposed project.

Lake Skinner Solar Project—Metropolitan Water District, Riverside County, California. Task Manager, Noise. Conducted the noise study for the IS/MND for this project, located in Riverside County. The primary issue with respect to noise was potential effects at adjacent residences from construction activities associated with the proposed project.

OceanWay Secure Energy Project EIS/EIR for Woodside Natural Gas Deepwater Port—AMEC, Los Angeles County, California. Task Manager, Noise. Responsible for the noise and vibration section of the EIS/EIR of this proposed liquefied natural gas (LNG) project. The potential noise/vibration effects of onshore construction and operations were assessed with respect to local, state and federal standards.

Transportation

Meadowpass Road Extension EIR, City of Walnut, California. Responsible for the measurement, analysis, and reporting. The primary issue for this project with respect to noise was potential effects from traffic at nearby residences as a result of the construction of the road extension.

I-15 Widening from San Bernardino to I-215 EIR/EIS, Transportation Commission, County of Riverside, California. Potential noise increases at adjacent noise-sensitive land uses were addressed pursuant to Federal Highway Administration and Caltrans guidelines. Noise measurements were conducted at representative noise-sensitive land uses along the 43.5-mile project alignment. Noise modeling (TNM® Version 2.5) was conducted in order to assess the changes in future traffic noise levels resulting from the proposed improvements, to determine existing and future traffic noise impacts and to provide noise abatement design guidance as needed. The results of the noise study were summarized in a noise study report and noise abatement decision report pursuant to Caltrans Technical Noise Supplement (TeNS) and noise protocol guidance.

State Route (SR-) 2 Freeway Terminus IS/Environmental Assessment (EA), Metro, Los Angeles, California. As part of this joint National Environmental Policy Act (NEPA)/California Environmental Quality Act (CEQA) document, the project was analyzed at an equal level of detail for the No Action

alternative and all five project alternatives. The analyses were conducted in accordance with guidelines set forth in the Caltrans Traffic Noise Protocol and TeNS handbooks. The study included noise measurements of ambient conditions adjacent to the project alignment, traffic noise impact analysis (using TNM® Version 2.5) to estimate potential noise effects at existing noise-sensitive receptors, and noise during construction. Results were summarized in a noise study report pursuant to Caltrans TeNS guidance.

Northern Canoga Extension of the Orange Line EIR, Metro, Reseda, California. Project entailed noise measurements and subsequent noise analysis of Metro bus operations on rubberized asphalt concrete (RAC) and non-RAC busway pavement to determine the benefit provided by RAC. Because differences in the noise levels were not expected to be substantial and because of site conditions, the design of the measurement setups was crucial. Site selection and details of the measurement procedures, including coordination of a dedicated test bus and driver, was an important part of the study. Simultaneous measurements at multiple locations were conducted from approximately 1 a.m. to 4 a.m. to reduce the influence of background noise. Noise measurement methodology, analysis results, and conclusions were summarized in a technical memorandum to the client.

Busway and Bus Rapid Transit Projects, Massachusetts Bay Transportation Authority, Boston, Massachusetts. Conducted and participated in noise analyses for Busway and Bus-Rapid Transit (BRT) projects using Federal Transit Administration (FTA) methodologies and standards. The project involved the construction of a proposed BRT project in downtown Boston. Analyzed potential noise and vibration impacts at adjacent sensitive receptors from construction and operation using FTA methodologies. In addition, Mr. Greened worked on similar projects in Portland, Oregon, and near Dallas, Texas.

Water/Wastewater

New Evans Reservoir IS/MND, Public Utilities Department, City of Riverside, California. Responsible for the measurement, analysis, and reporting of noise for this IS/MND. The primary issue for this project with respect to noise was construction (trenching) along the pipeline alignment adjacent to noise-sensitive land receptors.

Otay Mesa Recycled Water System Capital Improvement Project EIR, Otay Water District, Otay Mesa, California. Responsible for the noise analysis for this ongoing project involving the construction of three recycled water pipelines by the Otay Water District. The potential effect of noise from construction activities was the primary issue with regard to noise for this project. Noise levels at adjacent noise-sensitive uses were predicted and compared with relevant thresholds of significance, and mitigation measures were recommended as necessary to reduce noise to a level below significance.

PUBLICATIONS

Greene, M. 2011. *Noise Assessment of an Aquatics Facility in a Residential Area.* Joint Institute of Noise Control Engineering/Transportation Research Board ADC 40 Annual Summer Conference.

Greene, M. 2011. *Shake, Rattle & Roll Revisited: Results of Two Vibration Measurement Studies Near Large, Heavily-Traveled Freeways*. Joint Institute of Noise Control Engineering/Transportation Research Board ADC 40 Annual Summer Conference.

Greene, M. 2009. *Shake, Rattle and Roll: Results of a Vibration Study Near a Large, Heavily-Traveled Freeway*. Transportation Research Board ADC 40 Annual Summer Conference.

Greene, M. 2008. *Case Study and Lessons Learned: Preliminary Determination of Quiet Zone "Benefitted Area."* Transportation Research Board ADC 40 Annual Summer Conference.

Greene, M. 2008. *Does Installation of a Traffic Signal Cause Increased Traffic Noise? Pre- and Post-Installation Noise Measurement Results*. Transportation Research Board ADC 40 Annual Summer Conference.

Greene, M. 2004. *Multiple Analysis and Measurement Methods to Confirm the Absence of Noise Impacts from a Power Plant*. Transportation Research Board and the National Conference on Noise Control Engineering (NOISE-CON 2004).

Greene, M. 2002. *Typical Diurnal Traffic Noise Patterns for a Variety of Roadway Types*. Proceedings of the 2002 International Congress and Exposition on Noise Control Engineering (Inter-Noise 2002).

Greene, M. 2002. *Comparison of Pile-Driver Noise from Various Pile-Driving Methods and Pile Types*. Proceedings of the 2002 International Congress and Exposition on Noise Control Engineering (Inter-Noise 2002).

Greene, M. 2000. *Determination of Insertion Loss for Classrooms at a High School*. Proceedings of the 140th Meeting of the Acoustical Society of America and the National Conference on Noise Control Engineering (NOISE-CON 2000).

Greene, M. 1997. *Case Study: Noise Analysis of Operations from an Existing Mine at a Nearby Proposed Residential/Recreational Development*. Proceedings of the 1997 National Conference on Noise Control Engineering (NOISE-CON 1997).

Greene, M. 1991. *P.C. Based Program for Air Quality Calculations*. Proceedings of the Institute of Environmental Sciences Technical Meeting.

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Jonathan Leech, INCE, AICP – Senior Environmental Specialist/Acoustician

Jonathan Leech brings to Dudek over 25 years' environmental planning experience, including environmental research, impact assessment, field research, and land use analysis. Mr. Leech has over 8 years' focused experience in noise assessments, including exterior and interior noise exposure studies for single-family homes, as well as large-scale evaluations of proposed sub-divisions and specific plan projects, for inclusion in environmental impact reports (EIRs) or negative declarations (NDs). Mr. Leech has also performed noise evaluation of commercial and industrial sources, and provided noise monitoring during construction for compliance with project conditions and noise ordinance restrictions.

Mr. Leech has experience in the following areas:

- Environmental noise assessment
- Commercial/industrial noise evaluation
- Title 24 interior space noise isolation
- Transportation noise constraint analysis
- Air quality planning
- Land development permit processing
- California Environmental Quality Act (CEQA) procedures for public agencies
- Environmental planning and impact analysis
- Specific plan and master plan development
- General plan elements
- Master environmental assessments (EAs)
- Water resource development and management.

EDUCATION

University of California, Santa Barbara
BA, Environmental Studies/Geology, 1984

Pennsylvania State University, Coursework in Graduate Acoustics Program, 2012

CERTIFICATIONS

Professional Geologist, CA 2011

PROFESSIONAL AFFILIATIONS

Institute of Noise Control Engineering (INCE)

American Institute of Certified Planners (AICP)

American Planning Association (APA)

Association of Environmental Professionals (AEP)

PROJECT EXPERIENCE

Development

Montecito Ranch Estates Lots 2 and 3, Fremont Investment & Loan, Summerland, California. Prepared environmental noise evaluations for two separate proposed new residences in a large-lot subdivision with exposure to traffic noise from U.S. Highway 101. Evaluation addresses exterior and interior noise levels from future traffic levels, employing Traffic Noise Model (TNM) 2.5 for the analysis. Exterior noise exposure and interior noise exposure were calculated and compared to adopted CEQA significance thresholds for Santa Barbara County.

Crown Castle Cellular Equipment Installations, HP Communications, Inc., Santa Barbara, California. Prepared a noise study for two separate cellular antennae installations in residential land use zones in Santa Barbara. Analysis included measurement of equipment operation noise at adjacent residential property lines, calculation of the day-night average noise level (Ldn), and comparison of noise level to noise ordinance allowances.

Splash-N-Dash Carwash, Saturn of Santa Maria, Orcutt, California. Prepared noise study for carwash operations in a commercial zone bordered by residential land use zones in Orcutt (Santa Barbara County). Analysis included measurement of equipment operation noise at adjacent residential property lines, calculation of the community average noise level (CNEL), and comparison of noise level to noise policy and ordinance allowances.

1255 Coast Village Road, KIBO Group, Montecito, California. Prepared an environmental noise study addressing transportation-related noise sources upon proposed mixed-use development (1,411 square feet of restaurant space, 3,712 square feet of retail space, 3,342 square feet of office space, and two condominium residences) and short-term construction noise effects of the project on surrounding residential neighborhood.

Los Alamos Community Plan EIR– Technical environmental noise study and noise section for EIR on proposed Los Alamos Community Plan Update, County of Santa Barbara / Office of Long Range Planning, Los Alamos, California. The community of Los Alamos is a small unincorporated town in the north-central portion of Santa Barbara County, at the junction of U.S. Highway 101 and State Route 135. The noise study evaluated environmental noise effects upon proposed residential land use zones and project-related noise generation from proposed mixed-use zoning.

University Villages Specific Plan, SSBT LCRE V, LLC (c/o Meadow Lane LLC), Chula Vista, California. Prepared the noise technical report and noise EIR section for the University Villages Specific Plan, an approximately 460-acre site along the west side of State Route 125. The proposed project consists of a suburban development including residential, commercial, industrial park, public facility, and open space uses. Three elementary schools and one high school are planned. A total of 150 acres of the site will be reserved for open space uses, including neighborhood parks, a greenbelt system, and natural reserve.

Villages of San Jacinto Specific Plan, City of San Jacinto, San Jacinto, California. Prepared the noise technical report and noise EIR section for the Villages of San Jacinto Specific Plan, an approximately 600-acre site along the west side of Sanderson Avenue in San Jacinto. The proposed project consists of a suburban development including residential, commercial, business park, public facility, and open space uses. One elementary school and one high school are planned in the northeastern portion of the site. A total of 100.7 acres of the site will be reserved for open space uses, including four neighborhood parks, a greenbelt system, three lakes, and landscape easements.

Ocean View Estates, Rick Engineering, Encinitas, California. Prepared an environmental noise evaluation addressing a four-lot residential sub-division with direct exposure to Interstate 5 freeway.

Construction-related (short-term), exterior noise exposure, and interior noise exposure were calculated and compared to adopted CEQA significance thresholds for Encinitas.

Thompson Oak Court Mixed Commercial and Residential Project Environmental Noise Study, Buenaventura Homes, Inc., Ventura, California. Prepared an environmental noise study addressing transportation-related noise sources upon proposed mixed-use development (ground-floor retail with three levels of residential condominiums) and short-term construction noise effects of the proposed project on the surrounding residential neighborhood.

Mixed Commercial and Residential Project, 412-414 Anacapa Street, Anabilt Properties, LLC, Santa Barbara, California. Prepared an environmental noise study addressing transportation-related noise sources upon proposed mixed-use development (ground-floor commercial office with two levels of residential condominiums) and short-term construction noise effects of the proposed project on the surrounding residential neighborhood.

Education

Santa Barbara Middle School, Santa Barbara Middle School, Santa Barbara, California. Prepared an environmental noise study addressing siting recommendations and noise-control techniques for a proposed new outdoor sports court. The project site has exclusive residential properties on three sides, all of which were concerned about increased noise levels from the sports activity. Sound level measurements were taken and a sound wall was prescribed to attenuate noise levels at neighboring residential properties.

Isla Vista Elementary School Mitigated Negative Declaration/Initial Study (MND/IS), Goleta Union School District, Goleta, California. Served as CEQA coordinator for the redevelopment of the Isla Vista Elementary School. Responsible for preparing the IS and MND documents, noticing of the project, and acting as environmental hearing officer.

Dos Pueblos High School Master Improvement Plan MND/IS, Santa Barbara School and High School District, Santa Barbara, California. Served as CEQA coordinator for the environmental review of the comprehensive master improvement plan for Dos Pueblos High School that included stadium completion, a new performing arts center, and the replacement of the swimming pool. Also included in the improvement project is a creek restoration effort in response to a U.S. Army Corps of Engineering (ACOE) violation notice for non-permitted fill activities. As project manager, was responsible for preparing the IS and MND documents, noticing of the project, and management of technical subcontractors.

Healthcare

1722 State Street Surgical Center, 1772 State Street Investors, Santa Barbara, California. Prepared an environmental noise study addressing transportation-related noise sources upon proposed outpatient surgical center (approximately 10,000 square feet), and construction noise (short-term) and mechanical operation noise (long-term) of the proposed project on surrounding residential neighborhood. A

subsequent interior noise report was prepared to evaluate project compliance with indoor noise criterion, including identification of window and exterior door specifications to achieve compliance.

Golden Inn Senior Housing Project, The Housing Authority of Santa Barbara, Santa Ynez, California. This project consists of a range of senior housing opportunities, including assisted living, memory care, independent living, and on-site housing for facility employees. Prepared an environmental noise report evaluating the exterior noise exposure level from the adjacent State Route 246 highway facility, employing TNM 2.5 for the analysis. Exterior and interior noise exposure were calculated and compared to adopted CEQA significance thresholds for Santa Barbara County.

Municipal

City of Carpinteria. Functioned as contract environmental and planning staff from 1986 to 1988. Responsible for preparation of CEQA ISs and negative declarations (NDs), planning staff reports for Planning Commission and City Council, and administration of CEQA process for the City.

City of Ojai. Functioned as contract environmental and planning staff from 1987 to 1990. Responsible for preparation of CEQA ISs and NDs, planning staff reports for Planning Commission and City Council, and administration of CEQA process for the City.

City of Solvang. Functioned as contract environmental and planning staff from 1989 to 1992. Functioned as the planning director in 1997 and 1998 (also on a contract basis).

Waste Management CNG Fleet Conversion, Waste Management, Inc. Oceanside, California. Prepared noise study for proposal to convert Oceanside-based waste collection fleet to compressed natural gas (CNG). Proposal included replacement of diesel trucks with CNG trucks over a 2-year period, and installation of a compressed natural gas fueling system at the storage yard/maintenance facility. Conducted measurements of diesel and CNG trucks at another waste management facility, and calculated changes in noise levels from the project at adjoining residential property lines. Prepared noise technical report for the MND.

Chicago Grade Landfill Facility, Templeton, California. Prepared air quality and noise studies assessing air quality and noise emissions from expansion into new modules of the approved solid waste facility permit. Authored technical noise memo for the expanded operations, including off-site roadway traffic noise effects and back-up alarm effects at proximate residences.

Transportation

Las Vegas - San Pedro Creeks Capacity Improvements Project, Santa Barbara County Flood Control,Goleta, California. Principal in charge for the preparation of CEQA/National Environmental Policy Act (NEPA) environmental review documentation for this joint partnership between California Department of Transportation (Caltrans) District 5, City of Santa Barbara, City of Goleta, and the Santa Barbara County Flood Control District, to develop flood control improvements for these two creeks within the U.S. 101 corridor, Union Pacific Railroad rail corridor, and local streets.

U.S. 101 High Occupancy Vehicle (HOV) Lane Project Ventura County-Santa Barbara County; Linden Avenue and Casitas Pass Road U.S. 101 Overcrossings Replacement Project; U.S. 101 South Coast HOV Project, City of Carpinteria, Carpinteria, California. Served as as City of Carpinteria's representative on the Caltrans Project Development Team (PDT), representing the City as a project partner in the planning and implementation of the portions of these three U.S. Highway 101widening projects located partially or wholly within the City of Carpinteria. Also functioned as an extension of City staff as the case planner for local permits, including Coastal Development Permit and Major Condition Use Permit for each proposal.

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