ACOUSTICAL SITE ASSESSMENT
PETER RIOS ESTATES APARTMENTS
SAN DIEGO, CA

Submitted to:

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INTRODUCTION AND DEFINITIONS

Existing Site Characterization

The proposed Peter Rios Estates Apartments (APN 398-110-32) consists of approximately 3.2 gross acres, located in the Lakeside Community Planning Area (LCPA) of San Diego County as shown in Figure 1 on the following page. Regional access to the site is obtained from Interstate 8 (I-8) or Olde Highway 80 (SR 80) as shown in Figure 2 on Page 3 of this report. Surrounding land uses include the Pecan Park Mobile Home Park and the Rio Vista housing development.

The proposed site plan configuration and surrounding land uses can be seen in Figure 3 on Page 4 of this report. The project site itself resides as a fully disturbed land use. Elevations across the site range from approximately 670 feet to 720 feet above mean sea level (MSL).

Project Description

The Peter Rios Estates Apartments would construct eight (8) multifamily apartment structures as shown in Figure 4 on Page 5 of this report. The project would also include necessary roadway and drainage improvements as well as provide a pool/spa area and recreation building.

Acoustical Definitions and Theory

Sound waves are linear mechanical waves. They can be propagated in solids, liquids, and gases. The material transmitting such a wave oscillates in the direction of propagation of the wave itself. Sound waves originate from some sort of vibrating surface which alternatively compress the surrounding air on a forward movement, and expand it on a backward movement.

There is a large range of frequencies within which linear waves can be generated, sound waves being confined to the frequency range that can stimulate the auditory organs to the sensation of hearing. For humans, this range is from about 20 Hertz (Hz or cycles per second) to about 20,000 Hz. The air transmits these frequency disturbances outward from the source of the wave.

Noise can be represented as a superposition of periodic waves with a large number of components, and is generally defined as unwanted or annoying sound that is typically associated with human activity, and which interferes with or disrupts normal activities. Although exposure to high noise levels has been demonstrated to cause hearing loss, the principal human response to environmental noise is annoyance. The response of individuals to similar noise events is diverse and influenced by the type of noise, the perceived importance of the noise and its appropriateness in the setting, the time of day, and the sensitivity of the individual hearing the sound.

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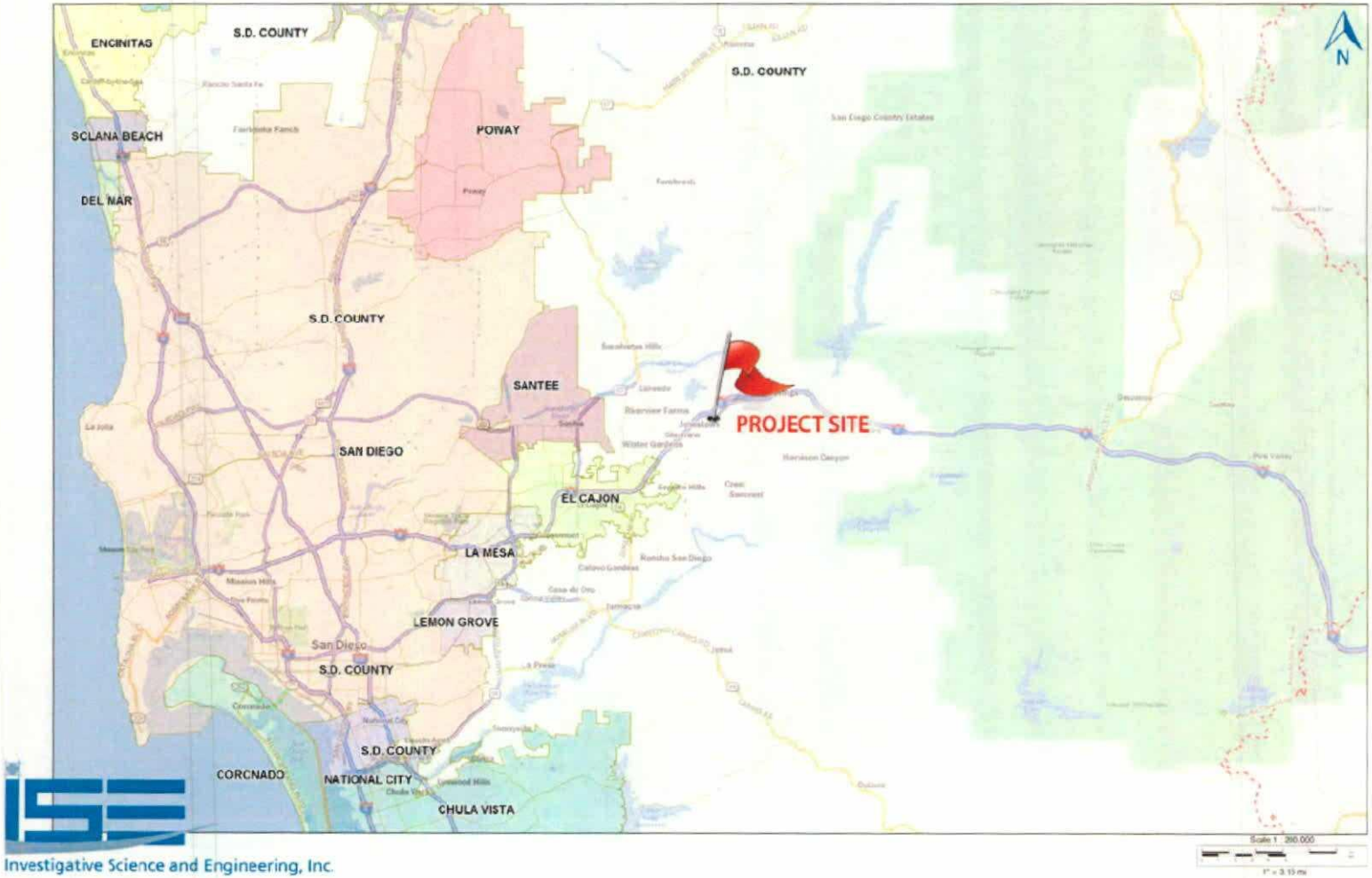

FIGURE 1: Project Study Area Vicinity Map (ISE 12/14)

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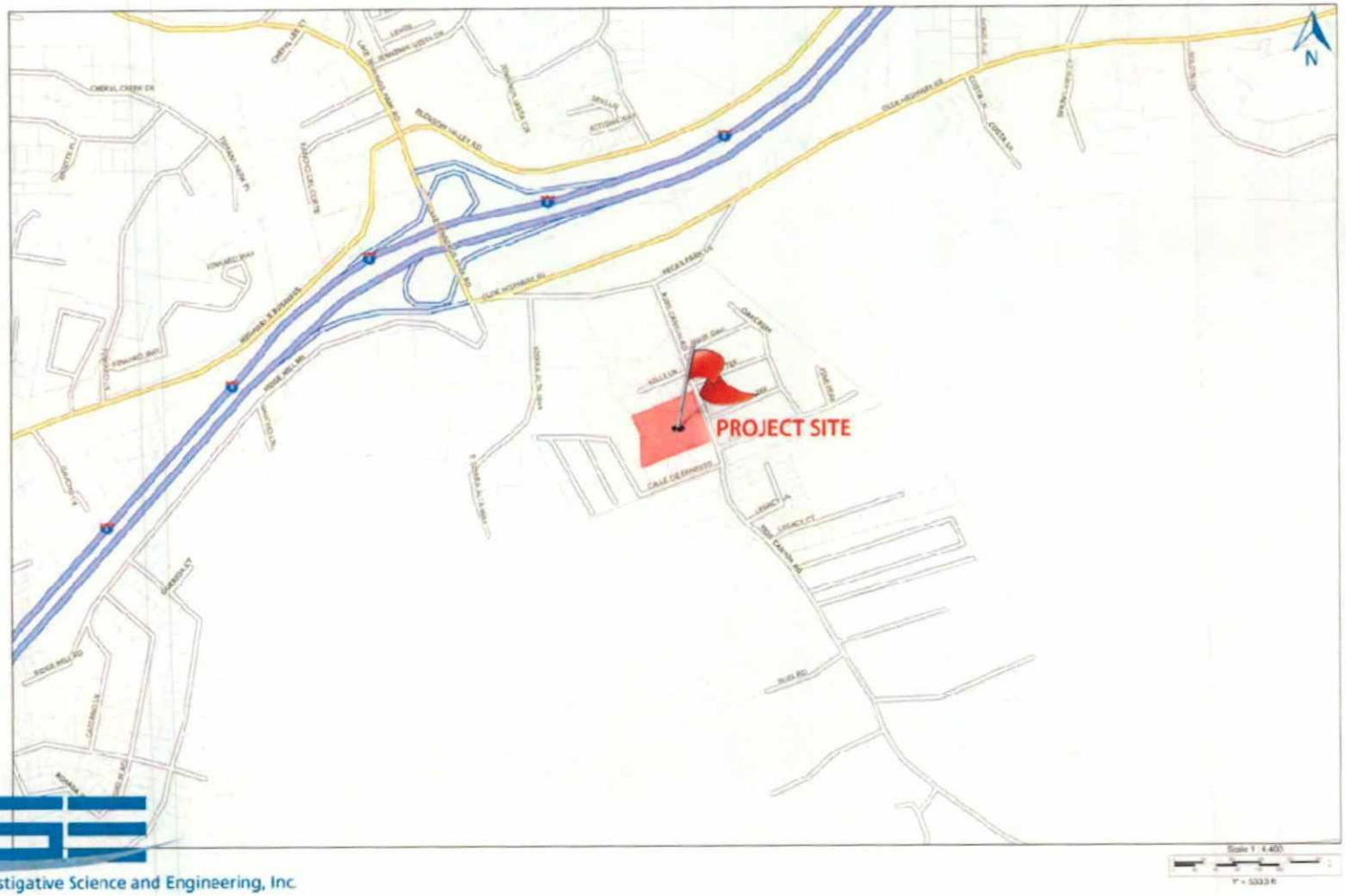

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FIGURE 2: Project Study Area Parcel Map (ISE 12/14)

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FIGURE 3: Aerial Image Showing Peter Rios Estates Development and Surrounding Uses (ISE 12/14)

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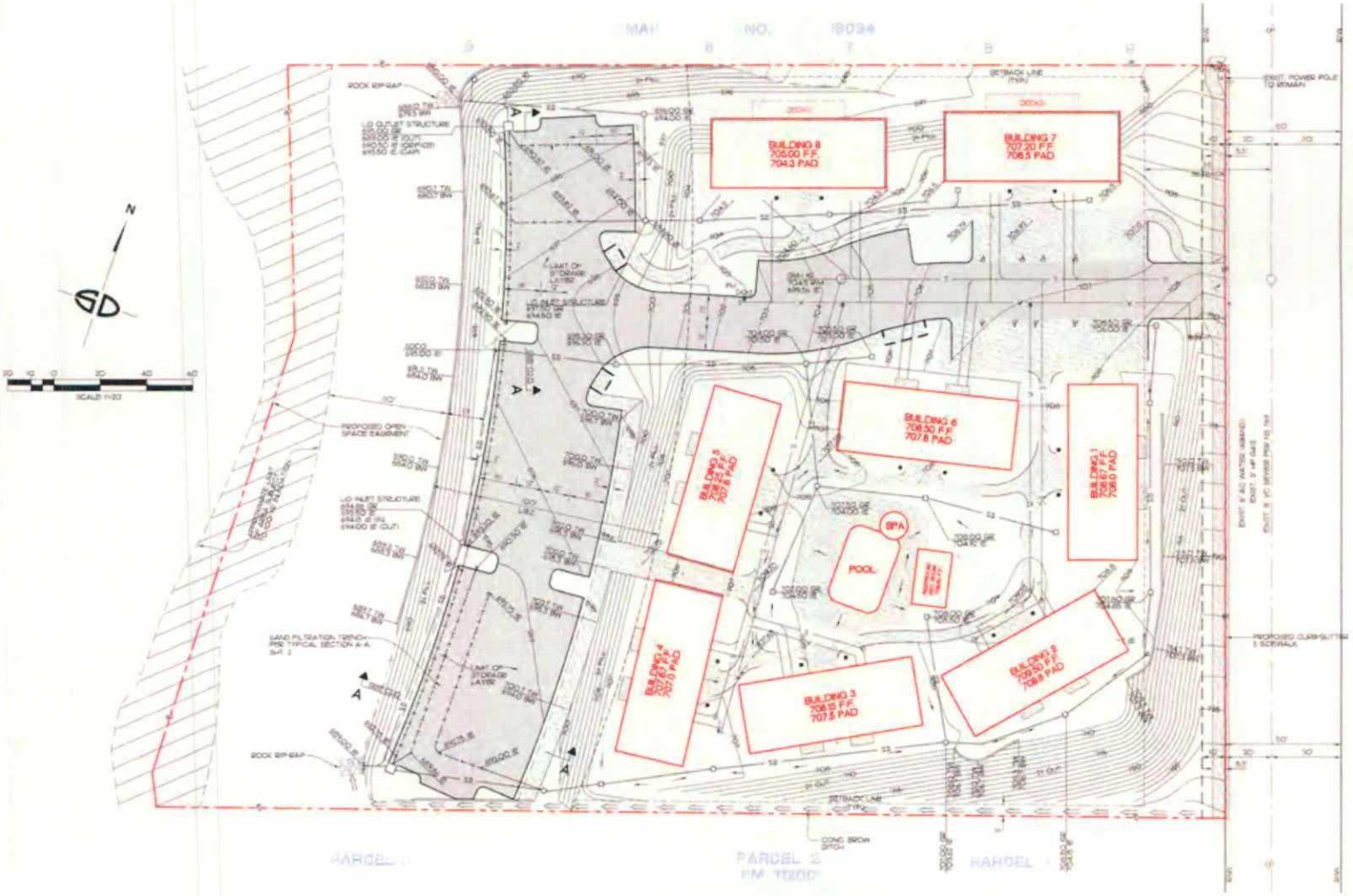

FIGURE 4: Proposed Peter Rios Estates Development Map (Snipes-Dye Associates 8/14)

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The loudest sounds that the human ear can hear comfortably are approximately one trillion (or $1x10^{12}$) times the acoustic energy that the ear can barely detect. Because of this vast range, any attempt to represent the acoustic intensity of a particular sound on a linear scale becomes unwieldy. As a result, a logarithmic ratio, originally conceived for radio work, known as the decibel (dB), is commonly employed.[1]

A sound level of zero "0" dB is scaled such that it is defined as the threshold of human hearing, and would be barely audible to a human of normal hearing under extremely quiet listening conditions. Sound levels above 120 dB roughly correspond to the threshold of pain. The minimum change in sound level that the human ear can detect is approximately 3.0 dBA.[2] A change in sound level of 10 dB is usually perceived by the average person as a doubling (or halving) of the sound's loudness.[3] A change in sound level of 10 dB actually represents an approximate 90 percent change in the sound intensity, but only about a 50 percent change in the perceived loudness. This is due to the nonlinear response of the human ear to sound.

As mentioned above, most of the sounds we hear in the environment do not consist of a single frequency, but rather a broad band of frequencies differing in sound level. The intensities of each frequency add to generate the sound we hear. The method commonly used to quantify environmental sounds, consists of determining all of the frequencies of a sound according to a weighting system that reflects the nonlinear response characteristics of the human ear. This is called "A" weighting, and the decibel level measured is called the A-weighted sound level (or dBA). In practice, the level of a noise source is conveniently measured using a sound level meter that includes a filter corresponding to the dBA curve.

Although the A-weighted sound level may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise includes a conglomeration of sounds from distant sources that create a relatively steady background noise in which no particular source is identifiable. For this type of noise, a single descriptor called the Leq (or equivalent sound level) is used. Leq is the energy-mean A-weighted sound level during a measured time interval, and would be defined mathematically by the following continuous integral,

$$L_{eq} = 10Log_{10}\left[\frac{1}{T}\int_{0}^{T} SPL(t)^2\, dt\right]$$

---

[1] A unit used to express the relative magnitude of a sound wave. This level is defined as being equal to 20 times the common logarithm of the ratio of the pressure produced by a sound wave of interest, to a 'reference' pressure wave equal to 20 micro Pascal's (μPa) measured at a distance of 1 meter. 20 μPa is the smallest amount of pressure capable of producing the sensation of hearing in a human.

[2] Every 3 dB equates to a 50% drop (or increase) in wave strength; therefore a 6 dB drop/increase = a loss/increase of 75% of total signal strength and so on.

[3] This is a subjective reference based upon the nonlinear nature of the human ear.

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In the previous expression, L_{eq} is the energy equivalent sound level, t is the independent variable of time, T is the total time interval of the event, and, SPL is the sound pressure level *re. 20 μPa*. Thus, L_{eq} is the 'equivalent' constant sound level that would have to be produced by a given source to equal the average of the fluctuating level measured. For most acoustical studies, the study interval is generally taken as one-hour and the abbreviation used is $L_{eq\text{-}h}$ or $L_{eq(h)}$; however, other time intervals are utilized depending on the jurisdictional preference.

To describe the time-varying character of environmental noise, the statistical noise descriptors L_{10} and L_{90} are commonly used. They are the noise levels equaled or exceeded during 10 percent and 90 percent of a stated time. Sound levels associated with the L_{10} typically describe transient or short-term events, while levels associated with the L_{90} describe the steady state (or most prevalent) noise conditions. In addition, it is often desirable to know the acoustic range of the noise source being measured. This is accomplished through the maximum and minimum measured sound level (L_{max} and L_{min}) indicators. The L_{min} value obtained for a particular monitoring location is often called the *acoustic floor* for that location.

The aggregate of all community noise events are typically averaged into a single value known as the *Community Noise Equivalent Level* (CNEL). This descriptor is calculated by averaging all events over a specified time interval and applying a 5-dBA penalty to any sounds occurring between 7:00 p.m. and 10:00 p.m., and a 10-dBA penalty to sounds that occur during nighttime hours (i.e., 10 p.m. to 7 a.m.). This penalty is applied to compensate for the increased sensitivity to noise during the quieter nighttime hours.

Mathematically, CNEL can be derived based upon the hourly L_{eq} values, via the following expression where, '$L_{eq}(x)_i$' is the equivalent sound level during period '*x*' at time interval 'i', and 'n' is the number of time intervals:

$$CNEL = 10Log_{10}\frac{1}{n}\sum_{i=1}^{n}\left(10^{\frac{Leq(day)_i}{10}} + 10^{\frac{Leq(evening+5)_i}{10}} + 10^{\frac{Leq(night+10)_i}{10}}\right)$$

ENVIRONMENTAL SIGNIFICANCE THRESHOLDS

County of San Diego Community Noise Regulations

Transportation noise levels, such as those produced by roadways, railroads, airports, heliports, are governed under the *County of San Diego's Noise Element of the 2020 General Plan*. Chapter 8, Tables N-1 and N-2 of the General Plan specify the following exterior noise compatibility guidelines as shown in Table 1 below.

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TABLE 1: County of San Diego General Plan 2020 Noise Element Compatibility Guidelines

Table N-1 Noise Compatibility Guidelines

	Land Use Category	Exterior Noise Level (CNEL)						
			55	60	65	70	75	80
A	Residential—single family residences, mobile homes, senior housing, convalescent homes							
B	Residential—multi-family residences, mixed-use (commercial/residential)							
C	Transient lodging—motels, hotels, resorts							
D*	Schools, churches, hospitals, nursing homes, child care facilities							
E*	Passive recreational parks, nature preserves, contemplative spaces, cemeteries							
F*	Active parks, golf courses, athletic fields, outdoor spectator sports, water recreation							
G*	Office\professional, government, medical/dental, commercial, retail, laboratories							
H*	Industrial, manufacturing, utilities, agriculture, mining, stables, ranching, warehouse, maintenance/repair							

	ACCEPTABLE—Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal construction, without any special noise insulation requirements.
	CONDITIONALLY ACCEPTABLE—New construction or development should be undertaken only after a detailed noise analysis is conducted to determine if noise reduction measures are necessary to achieve acceptable levels for land use. Criteria for determining exterior and interior noise levels are listed in Table N-2, Noise Standards. If a project cannot mitigate noise to a level deemed Acceptable, the appropriate county decision-maker must determine that mitigation has been provided to the greatest extent practicable or that extraordinary circumstances exist.
	UNACCEPTABLE—New construction or development shall not be undertaken.

* Denotes facilities used for part of the day; therefore, an hourly standard would be used rather than CNEL (refer to Table N-2).

Table N-2 Noise Standards

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

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Thus, for the proposed Peter Rios Estates Apartments, an exterior noise abatement standard of 65 dBA CNEL would be the applicable threshold of significance.

State of California CCR Title 24

The California Code of Regulations (CCR), State Building Code, Part 2, Title 24, Appendix Chapter 35; "*Noise Insulation Standards for Multifamily Housing*" requires that multi-family dwellings, hotels, and motels located where the CNEL exceeds 60 dBA require an acoustical analysis showing that the proposed design will limit interior noise to less than 45 dBA CNEL for all residential spaces. Worst-case noise levels, either existing or future, must be used.

The County of San Diego has adopted the CCR Title 24 regulations for all types of residential dwellings as codified under the General Plan guidelines N-2(1)(2).

San Diego County Construction Noise Ordinance Regulations

The County of San Diego Noise Ordinance Sections 36.409 through 36.410 govern construction noise emissions and allowable daily thresholds. The relevant parts are cited below.

Section 36.409: Sound Level Limitations on Construction Equipment

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

Section 36.410: Sound Level Limitations on Impulsive Noise

a) Except for emergency work or work on a public road project, no person shall produce or cause to be produced an impulsive noise that exceeds the maximum sound level… {of 82 dBA within a residential, village zoning or civic use area, or 85 dBA within an agricultural, commercial or industrial use zone}, …when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is received, for 25 percent of the minutes in the measurement period. The maximum sound level depends on the use being made of the occupied property.

b) Except for emergency work, no person working on a public road project shall produce or cause to be produced an impulsive noise that exceeds the maximum sound level… {of 85 dBA within a residential, village zoning or civic use area, or 90 dBA within an agricultural, commercial or industrial use zone}, …when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is received, for 25

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percent of the minutes in the measurement period. The maximum sound level depends on the use being made of the occupied property.

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

APPROACH AND METHODOLOGY

Field Acoustical Reconnaissance

Two independent monitoring locations were selected within the proposed Peter Rios Estates Apartments for the purpose of determining the ambient baseline community noise levels during normal free-flow weekday traffic conditions. The instrumentation locations, denoted as Monitoring Locations ML 1 (near Rios Canyon Road adjacent to proposed Building 1), and ML 2 (at the rear of the proposed development site to the west), are shown in Figure 5 on Page 12 of this report. Measurements were performed on December 11, 2014 between 11:15 a.m. and 12:30 p.m., under normal traffic conditions.

For the field monitoring effort, two Quest SoundPro SP-DL-2 ANSI Type 2 integrating sound level meters were used as the data collection devices. The meters were affixed to tripods five-feet above ground level, in order to simulate the noise exposure of an average-height human being. Prior to testing, all equipment was calibrated at ISE's acoustics and vibration laboratory to verify conformance with ANSI S1-4 1983 Type 2 and IEC 651 Type 2 standards.[4] Photos of the test setup are shown in Figures 6a and -b starting on Page 13 of this report.

Construction Noise Impact Assessment Approach

Major construction noise emission generators expected within the Peter Rios Estates site would consist predominately of diesel-powered grading and earthwork equipment required for grading activities, underground work, and surface paving. Construction noise present at the project site was based upon past measured levels and

[4] All testing and calibration is performed by ISE's Acoustics and Vibration Laboratory using a LORAN-C and Rubidium atomic frequency and time standard traceable to National Institute of Standards & Technology (NIST). The time and frequency calibration signal has a long-term stability of 10^{-10}. Specifications for traceability can be obtained at *www.nist.gov*.

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FIGURE 5: Ambient Noise Monitoring Locations ML 1 and ML 2 (ISE 12/14)

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FIGURE 6a: Ambient Noise Monitoring Photos ML 1 (ISE 12/14)

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FIGURE 6b: Ambient Noise Monitoring Photos ML 2 (ISE 12/14)

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FINDINGS AND RECOMMENDATIONS

Field Acoustical Reconnaissance Findings

The results of the field reconnaissance sound level monitoring are shown in Table 2 below with the field data record provided as attachment APP 1 to this report. The values for the equivalent sound level (L_{eq-h}), the maximum and minimum measured sound levels (L_{max} and L_{min}), and the statistical indicators L_{10} and L_{90}, are given for the monitoring location examined.

TABLE 2: Measured Ambient Sound Levels – Peter Rios Estates Apartments

		1-Hour Noise Level Descriptors in dBA				
Monitoring Location	**Start Time**	L_{eq}	L_{max}	L_{min}	L_{10}	L_{90}
ML 1	11:15 a.m.	55.5	76.0	42.6	58.4	45.6
ML 2	11:21 a.m.	49.3	62.2	41.8	52.9	44.8

Monitoring Location:

Location ML 1: Near Proposed Lot 7. GPS: CA-VI 6369224.0, 1886481.0
Location ML 2: Near Proposed Lot 1. GPS: CA-VI 6368967.8, 1886435.8

Measurements performed by ISE on 12/11/14.

Temperature = 70.0 °F. Relative Humidity = 36.7 %. Barometric Pressure = 29.56 in-Hg.

Measurements collected reflect the ambient daytime community sound levels in the vicinity of the proposed project site. The hourly average sound level (or L_{eq-h}) recorded over the monitoring period ranged between 49 to 56 dBA and was observed to be entirely due to an aggregation of community noise from afar. These levels were found to be in compliance with the County's compatibility standards and consistent with the observed community setting.

Construction Noise Emission Levels

The estimated worst-case construction noise emissions are provided in Table 3 for the combination of site clearing, grading, and infrastructure work. Construction within the proposed project site would occur between the hours of 7:00 a.m. and 3:00 p.m. Monday through Friday.

The nearest sensitive property line would be approximately 60-feet from any construction activity. Predicted noise levels could be as high as 76.2 dBA Leq_{8h} at 50-feet, with a resultant receptor level of 74.2 dBA Leq_{8h} or less. This level is below the County's construction noise abatement threshold, and would not generate impacts.

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TABLE 3: Predicted Construction Noise Levels – Peter Rios Estates Development Site

Equipment Type Model	Selected EPA Tier Level	Quantity Used (#)	Source Level @ 50 Feet @ Full Load (dBA)	Average Load Factor (%)	Duty Cycle (hrs/day)	Cumulative Effect @ 50 Feet (dBA Leq_{8h})
Push Dozer D10T	3	1	75	40	4	68.0
Dozer D6T LGP	3	1	75	40	4	68.0
Scraper- 657G Tractor	3	1	80	30	4	71.8
Motor Grader 120K	3	1	70	50	4	64.0
Water Truck	3	1	70	40	4	63.0
Hydraulic Excavator 349EL	3	1	75	60	4	69.8
				Worst-Case Aggregate Sum @ 50 Ft. (Σ):		**76.2**
				Leq_{8h} at Receptor Area 60-Feet Distant:		**74.2**

Source: EPA PB 206717, Environmental Protection Agency, 12/31/71, "Noise from Construction Equipment and Operations"

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Future Traffic Noise Impacts to Proposed Development

Traffic noise affecting the proposed Peter Rios Estates Apartments is currently, and would continue to be, the aggregation of surface street traffic along Rios Canyon Road traveling at a maximum speed of 35 MPH. Other roadway noise sources such as Olde Highway 80 and Interstate 8 were found to be located between 1,150 to 1,500 feet from the project site respectively, and thus were deemed insignificant contributors to future onsite traffic noise.

Figure 7 on the following page graphically identifies the worst case average daily traffic (ADT) volume along this affected roadway as being 4,741 ADT. Given this, Figure 8 on Page 19 and Table 4 below shows the predicted onsite sound levels at various locations within the project site, and whether or not mitigation measures are indicated. The complete model runs are provided as Attachment APP 2 to this report.

TABLE 4: Predicted Future Transportation Noise Levels – Peter Rios Estates Apartments

TNM Calculation Location	Ground Receptor Sound Levels in dBA	Elevated Receptor Sound Levels in dBA	GP 2020 Exterior Mitigation Required?	CCR Title 24 Interior Mitigation Required?
Building 1 Façade E	61.2	62.3	No	Yes
Building 2 Façade E	59.5	61.4	No	Yes
Building 2 Façade S	56.5	58.7	No	No
Building 3 Façade E	51.9	53.5	No	No
Building 3 Façade S	50.8	52.5	No	No
Building 3 Façade N	49.4	51.0	No	No
Building 4 Façade E	47.2	49.0	No	No
Building 4 Façade S	46.7	48.0	No	No
Building 5 Façade E	49.2	50.8	No	No
Building 5 Façade N	50.4	51.1	No	No
Building 6 Façade N	55.4	55.8	No	No
Building 6 Façade E	55.6	56.3	No	No
Building 6 Façade S	51.9	53.1	No	No
Building 7 Façade E	61.7	62.0	No	Yes
Building 7 Façade S	57.6	58.2	No	No
Building 7 Deck	n/a	58.0	No	*n/a*
Building 8 Façade N	54.0	54.7	No	No
Building 8 Façade E	53.0	54.5	No	No
Building 8 Façade S	51.9	52.7	No	No
Building 8 Deck	*n/a*	53.1	No	*n/a*
Pool Area	51.2	*n/a*	No	*n/a*
Recreation Room Façade E	53.2	*n/a*	No	*n/a*
Spa Area	51.6	*n/a*	No	*n/a*

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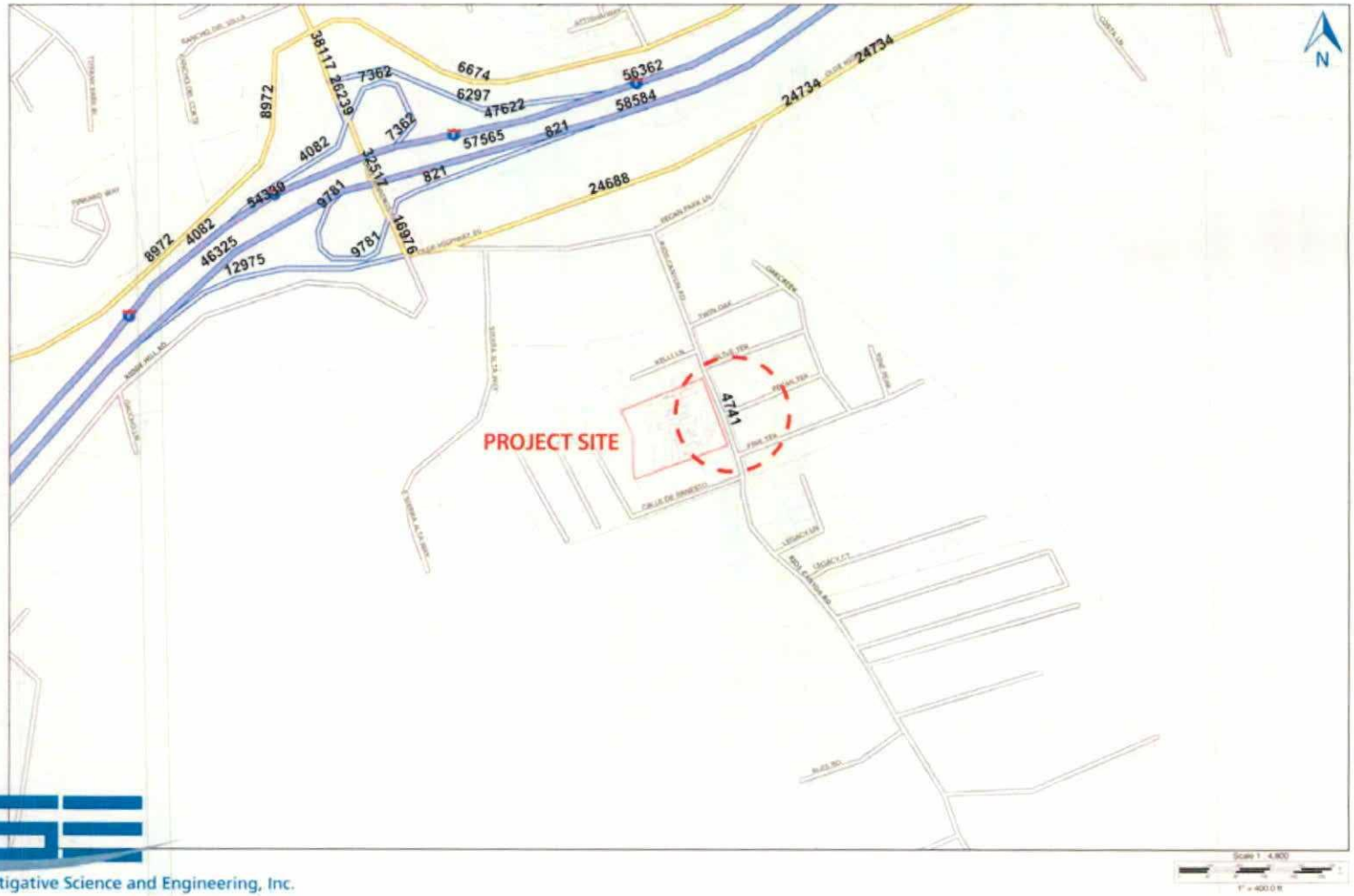

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FIGURE 7: County of San Diego GP 2020 + Hybrid Traffic Segment Predictions (ISE 12/14)

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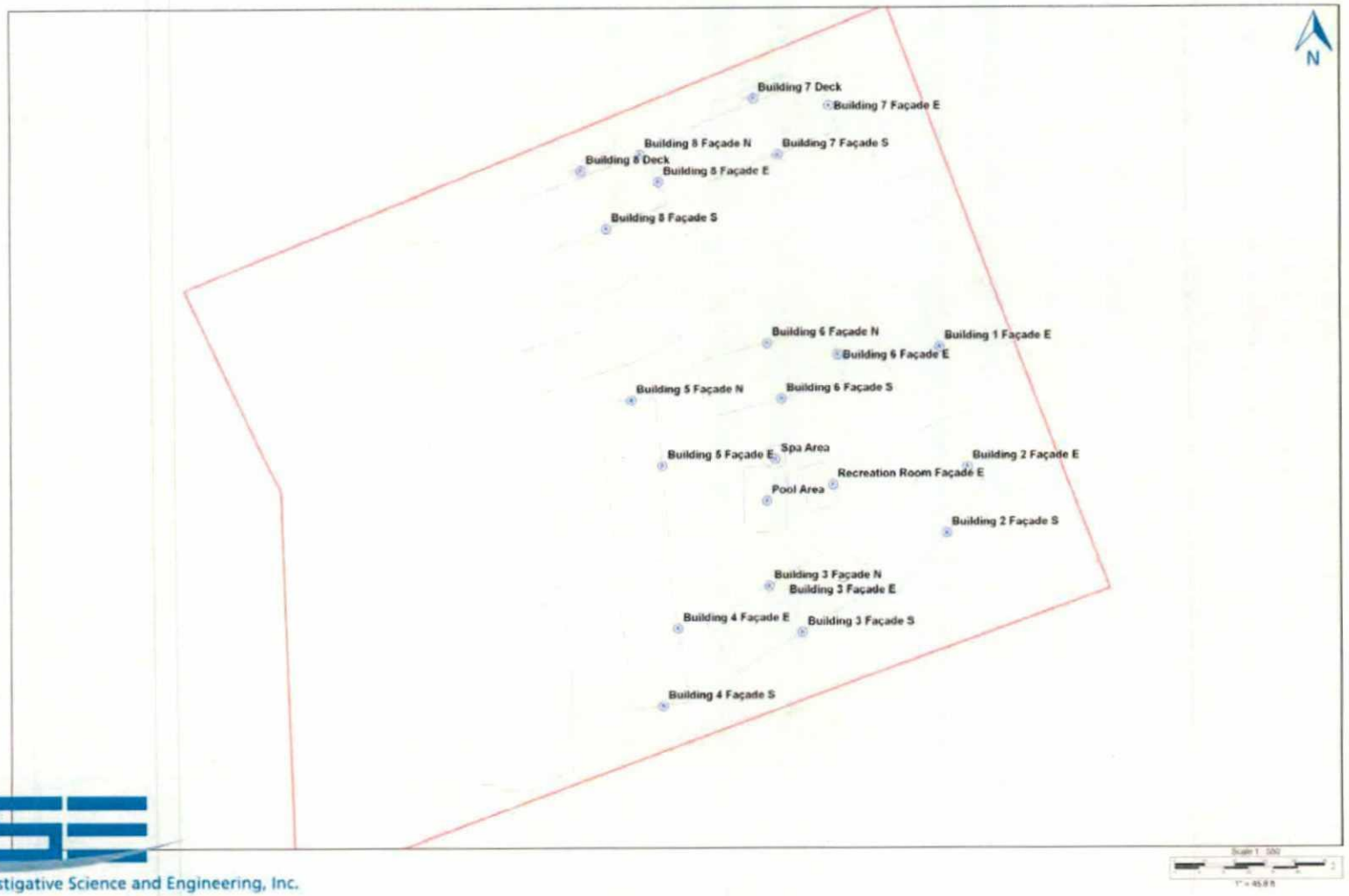

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FIGURE 8: Modeled TNM Receptor Points within Project Site (ISE 4/15)

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Based upon the findings, no exterior noise levels within sensitive usable space areas are identified which would exceed the County's noise abatement standards. No significant exterior acoustical impacts are identified.

Future first- and second-floor building façade noise levels were found to be above the State of California noise insulation standard of 60 dBA CNEL, and would require mitigation. An interior acoustical site assessment of affected structures, consistent with CCR Title 24, Part 2 should be completed prior to final submittal of architectural plans for the project site.

CERTIFICATION OF ACCURACY AND QUALIFICATIONS

This report was prepared by Investigative Science and Engineering, Inc. (ISE), located at 1134 D Street, Ramona, CA 92065. The members of its professional staff contributing to the report are listed below:

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ISE affirms to the best of its knowledge and belief that the statements and information contained herein are in all respects true and correct as of the date of this report. Content and information contained within this report is intended only for the subject project and is protected under 17 U.S.C. §§ 101 through 810.

Should the reader have any questions regarding the findings and conclusions presented in this report, please do not hesitate to contact ISE at (760) 787-0016.

Approved as to Form and Content:

Rick Tavares, Ph.D.

Project Principal
Investigative Science and Engineering, Inc. (ISE)

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APPENDICIES AND SUPPLEMENTAL INFORMATION

APP 1 – Field Reconnaissance Measurement Results

Monitoring Location ML 1

12/11/2014

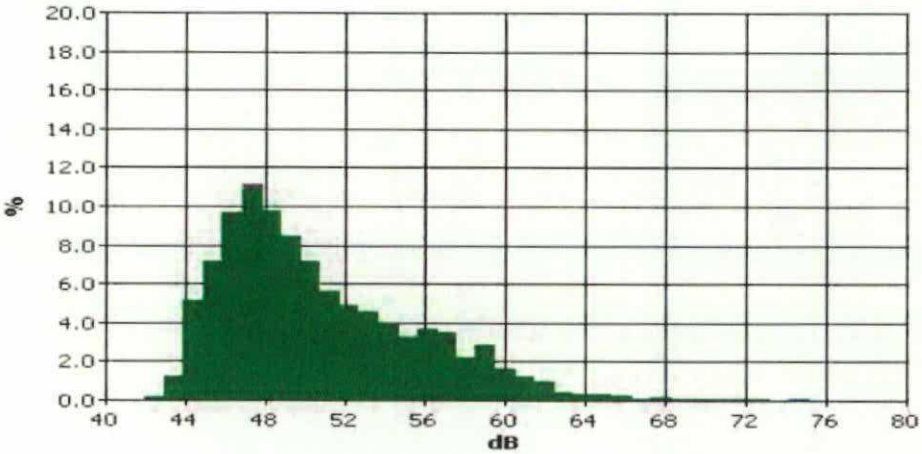
Information Panel

Name	ML 1
Start Time	Tuesday, December 09, 2014 11:15:53
Stop Time	Tuesday, December 09, 2014 12:15:21
Device Model Type	SoundPro DL
Comments	

General Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	55.4 dB	Exchange Rate	1	3 dB
Weighting	1	A	Response	1	SLOW
Bandwidth	1	OFF	Exchange Rate	2	3 dB
Weighting	2	C	Response	2	FAST

Statistics Chart



Statistics Table

dB	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	%
40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
42.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1
43.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.3	1.2
44.0	0.4	0.3	0.4	0.4	0.5	0.6	0.5	0.6	0.6	0.7	5.1
45.0	0.7	0.6	0.5	0.7	0.7	0.7	0.6	0.8	0.9	0.9	7.1
46.0	0.9	1.0	0.9	0.8	1.0	1.1	1.0	1.0	1.0	0.9	9.7
47.0	1.1	1.1	1.2	1.1	1.1	1.1	1.2	1.0	1.1	1.1	11.1
48.0	1.1	1.4	0.9	1.1	1.1	1.0	0.8	0.9	0.8	0.7	9.7
49.0	0.8	0.8	0.7	0.8	0.8	0.9	0.9	1.0	0.9	0.8	8.5
50.0	0.8	0.8	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.6	7.2
51.0	0.8	0.7	0.4	0.6	0.5	0.5	0.6	0.6	0.6	0.6	5.6
52.0	0.5	0.5	0.5	0.6	0.5	0.6	0.5	0.4	0.4	0.4	4.9
53.0	0.5	0.5	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.4	4.5
54.0	0.5	0.5	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.3	4.0
55.0	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.4	3.3
56.0	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.4	3.7
57.0	0.4	0.4	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	3.5
58.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	2.2
59.0	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	2.8
60.0	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	1.6
61.0	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.2
62.0	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.0
63.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
64.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
65.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.3
66.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3

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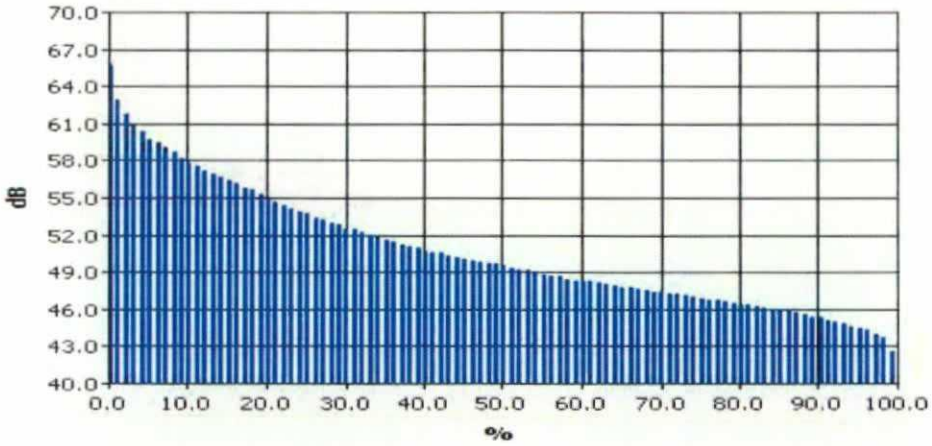
Statistics Table (cont'd)

dB	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	%
67.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
68.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
69.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
70.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
71.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
72.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
73.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
74.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
76.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
79.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Exceedance Chart



Exceedance Table

	0%	1%	2%	3%	4%	5%	6%	7%	8%	9%
0%		65.7	62.9	61.8	60.9	60.3	59.7	59.4	59.1	58.7
10%	58.2	57.8	57.5	57.2	56.9	56.7	56.4	56.1	55.8	55.6
20%	55.2	54.9	54.6	54.4	54.1	53.9	53.7	53.4	53.2	53.0
30%	52.8	52.5	52.4	52.2	52.0	51.8	51.6	51.4	51.2	51.0
40%	50.9	50.7	50.6	50.5	50.3	50.2	50.0	49.9	49.8	49.7
50%	49.6	49.5	49.3	49.2	49.1	49.0	48.8	48.7	48.6	48.4
60%	48.3	48.3	48.2	48.1	48.0	47.9	47.8	47.7	47.6	47.5
70%	47.4	47.4	47.3	47.2	47.1	47.0	46.9	46.8	46.7	46.6
80%	46.5	46.4	46.3	46.2	46.1	46.0	45.9	45.8	45.7	45.6
90%	45.4	45.3	45.1	44.9	44.8	44.6	44.4	44.3	44.0	43.7
100%	42.5									

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Monitoring Location ML 2

12/11/2014

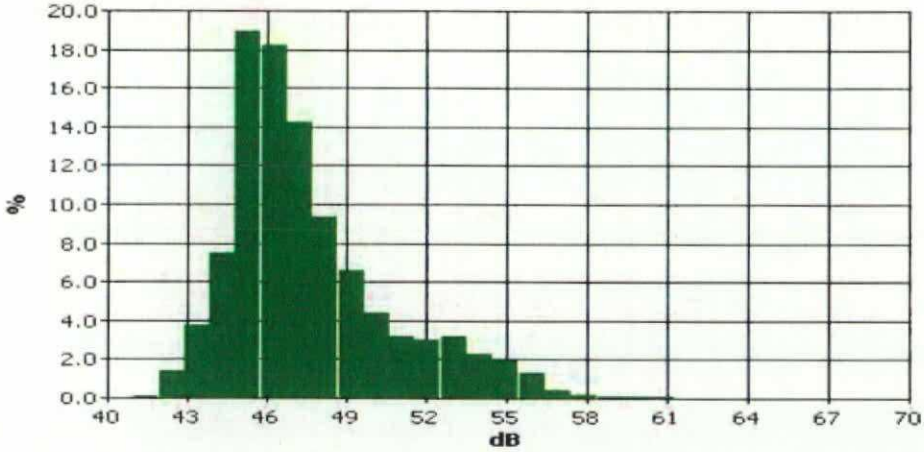
Information Panel

Name	ML 2
Start Time	Tuesday, December 09, 2014 11:21:53
Stop Time	Tuesday, December 09, 2014 12:21:31
Device Model Type	SoundPro DL
Comments	

General Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	49.2 dB	Exchange Rate	1	3 dB
Weighting	1	A	Response	1	SLOW
Bandwidth	1	OFF	Exchange Rate	2	3 dB
Weighting	2	A	Response	2	SLOW

Statistics Chart



Statistics Table

dB	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	%
40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
42.0	0.0	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.2	1.4
43.0	0.2	0.1	0.4	0.4	0.3	0.4	0.5	0.4	0.4	0.6	3.7
44.0	0.6	0.5	0.6	0.6	0.6	0.7	0.8	0.9	1.1	1.1	7.5
45.0	1.1	1.3	1.7	1.9	2.2	2.4	2.0	2.0	2.2	2.2	19.0
46.0	2.4	1.5	2.1	1.9	1.8	1.7	1.6	1.8	1.7	1.7	18.2
47.0	1.7	1.6	1.6	1.6	1.4	1.3	1.4	1.4	1.2	1.0	14.2
48.0	1.1	1.1	1.0	1.1	0.9	0.7	0.9	0.9	0.9	0.9	9.4
49.0	0.9	0.8	0.8	0.7	0.6	0.7	0.6	0.5	0.5	0.6	6.6
50.0	0.6	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.3	4.4
51.0	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	3.1
52.0	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	3.0
53.0	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	3.2
54.0	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	2.3
55.0	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	1.9
56.0	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	1.3
57.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.4
58.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
59.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
60.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
61.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
62.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
63.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
64.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
66.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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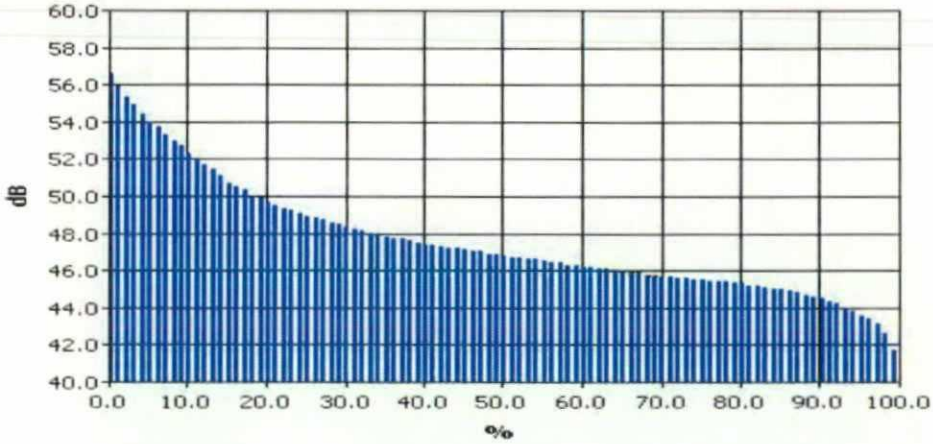
Statistics Table (cont'd)

dB	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	%
67.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
68.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
69.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Exceedance Chart



Exceedance Table

	0%	1%	2%	3%	4%	5%	6%	7%	8%	9%
0%		58.6	55.9	55.3	54.9	54.4	54.0	53.7	53.3	53.0
10%	52.7	52.3	52.0	51.7	51.4	51.1	50.7	50.5	50.3	50.0
20%	49.9	49.7	49.5	49.3	49.2	49.1	48.9	48.8	48.7	48.6
30%	48.5	48.3	48.2	48.1	48.0	47.9	47.8	47.7	47.7	47.6
40%	47.5	47.4	47.4	47.3	47.2	47.2	47.1	47.0	47.0	46.9
50%	46.9	46.8	46.7	46.7	46.6	46.6	46.5	46.4	46.4	46.3
60%	46.3	46.2	46.2	46.1	46.1	46.0	45.9	45.9	45.9	45.8
70%	45.8	45.7	45.7	45.6	45.6	45.5	45.5	45.4	45.4	45.4
80%	45.3	45.3	45.2	45.2	45.1	45.0	45.0	44.9	44.8	44.7
90%	44.6	44.5	44.3	44.2	44.0	43.8	43.6	43.4	43.1	42.6
100%	41.7									

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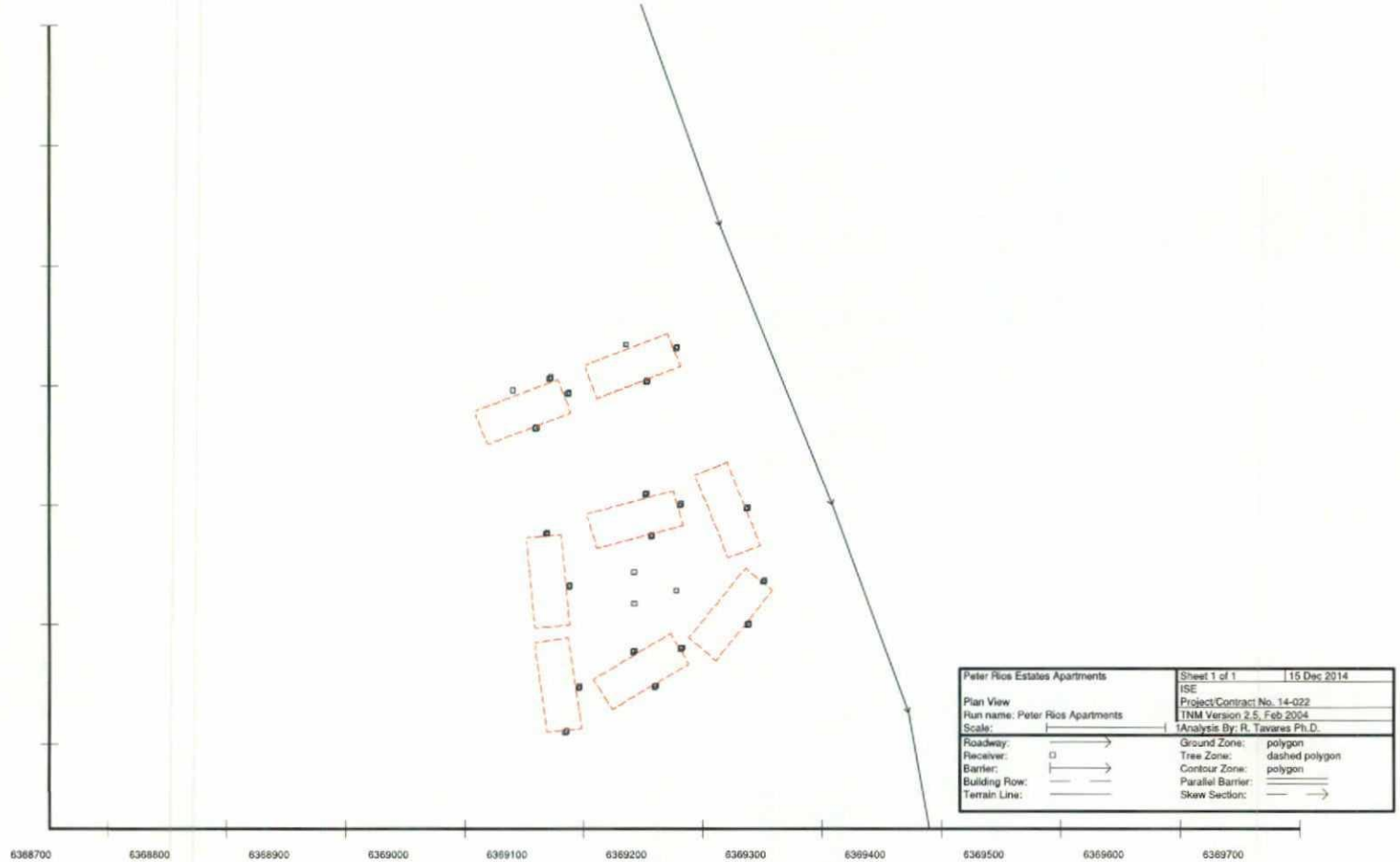
APP 2 – TNM Model Input/Output Data



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INPUT: ROADWAYS 14-022

ISE 15 December 2014
R. Tavares Ph.D. TNM 2.5

INPUT: ROADWAYS
PROJECT/CONTRACT: 14-022
RUN: Peter Rios Estates Apartments

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA

Roadway Name	Width	Points Name	No.	Coordinates (pavement) X	Y	Z	Flow Control Control Device	Speed Constraint	Percent Vehicles Affected	Segment Pvmt Type	On Struct?
	ft			ft	ft	ft		mph	%		
Rios Canyon Road	50.0	Rios Cany	72	6,369,148.0	1,886,918.0	678.70				Average	
		Rios Cany	73	6,369,214.0	1,886,734.0	691.50				Average	
		Rios Cany	74	6,369,308.0	1,886,501.0	714.50				Average	
		Rios Cany	75	6,369,372.0	1,886,327.0	728.60				Average	
		Rios Cany	76	6,369,391.0	1,886,221.0	731.50					

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INPUT: TRAFFIC FOR LAeq1h Volumes 14-022

ISE 15 December 2014
R. Tavares Ph.D. TNM 2.5

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: 14-022
RUN: Peter Rios Estates Apartments

Roadway Name	Points Name	No.	Segment Autos V veh/hr	Autos S mph	MTrucks V veh/hr	MTrucks S mph	HTrucks V veh/hr	HTrucks S mph	Buses V veh/hr	Buses S mph	Motorcycles V veh/hr	Motorcycles S mph
Rios Canyon Road	Rios Canyon 1	72	335	35	24	35	18	30	1	30	2	35
	Rios Canyon 2	73	335	35	24	35	18	30	1	30	2	35
	Rios Canyon 3	74	335	35	24	35	18	30	1	30	2	35
	Rios Canyon 4	75	335	35	24	35	18	30	1	30	2	35
	Rios Canyon 5	76										

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INPUT: RECEIVERS 14-022

ISE 15 December 2014
R. Tavares Ph.D. TNM 2.5

INPUT: RECEIVERS
PROJECT/CONTRACT: 14-022
RUN: Peter Rios Estates Apartments

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria Existing LAeq1h	Impact Criteria LAeq1h	Sub'l	NR Goal	Active in Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
Building 1 Floor 1 Façade	388	1	6,369,236.0	1,886,498.0		708.00	5.00	0.00	65	10.0	5.0 Y
Building 1 Floor 2 Façade	389	1	6,369,237.0	1,886,499.0		718.00	5.00	0.00	65	10.0	5.0 Y
Building 2 Floor 1 Façade	390	1	6,369,250.0	1,886,437.0		708.80	5.00	0.00	65	10.0	5.0 Y
Building 2 Floor 1 Façade	391	1	6,369,237.0	1,886,401.0		708.80	5.00	0.00	65	10.0	5.0 Y
Building 2 Floor 2 Façade	392	1	6,369,251.0	1,886,438.0		718.80	5.00	0.00	65	10.0	5.0 Y
Building 2 Floor 2 Façade	393	1	6,369,238.0	1,886,402.0		718.80	5.00	0.00	65	10.0	5.0 Y
Building 3 Floor 1 Façade	394	1	6,369,181.0	1,886,381.0		707.50	5.00	0.00	65	10.0	5.0 Y
Building 3 Floor 1 Façade	395	1	6,369,159.0	1,886,349.0		707.50	5.00	0.00	65	10.0	5.0 Y
Building 3 Floor 1 Façade	396	1	6,369,141.0	1,886,378.0		707.50	5.00	0.00	65	10.0	5.0 Y
Building 3 Floor 2 Façade	397	1	6,369,182.0	1,886,382.0		717.50	5.00	0.00	65	10.0	5.0 Y
Building 3 Floor 2 Façade	398	1	6,369,160.0	1,886,350.0		717.50	5.00	0.00	65	10.0	5.0 Y
Building 3 Floor 2 Façade	399	1	6,369,142.0	1,886,379.0		717.50	5.00	0.00	65	10.0	5.0 Y
Building 4 Floor 1 Façade	400	1	6,369,095.0	1,886,348.0		707.00	5.00	0.00	65	10.0	5.0 Y
Building 4 Floor 1 Façade	401	1	6,369,064.0	1,886,311.0		707.00	5.00	0.00	65	10.0	5.0 Y
Building 4 Floor 2 Façade	402	1	6,369,096.0	1,886,349.0		717.00	5.00	0.00	65	10.0	5.0 Y
Building 4 Floor 2 Façade	403	1	6,369,085.0	1,886,312.0		717.00	5.00	0.00	65	10.0	5.0 Y
Building 5 Floor 1 Façade	404	1	6,369,087.0	1,886,433.0		707.60	5.00	0.00	65	10.0	5.0 Y
Building 5 Floor 1 Façade	405	1	6,369,068.0	1,886,477.0		707.60	5.00	0.00	65	10.0	5.0 Y
Building 5 Floor 2 Façade	406	1	6,369,088.0	1,886,434.0		717.60	5.00	0.00	65	10.0	5.0 Y
Building 5 Floor 2 Façade	407	1	6,369,069.0	1,886,478.0		717.60	5.00	0.00	65	10.0	5.0 Y
Building 6 Floor 1 Façade	408	1	6,369,151.0	1,886,510.0		707.80	5.00	0.00	65	10.0	5.0 Y
Building 6 Floor 1 Façade	409	1	6,369,180.0	1,886,501.0		707.80	5.00	0.00	65	10.0	5.0 Y

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INPUT: RECEIVERS **14-022**

Building 6 Floor 1 Façade	410	1	6,369,156.0	1,886,475.0	707.80	5.00	0.00	65	10.0	5.0	Y
Building 6 Floor 2 Façade	411	1	6,369,152.0	1,886,511.0	717.80	5.00	0.00	65	10.0	5.0	Y
Building 6 Floor 2 Façade	412	1	6,369,181.0	1,886,502.0	717.80	5.00	0.00	65	10.0	5.0	Y
Building 6 Floor 2 Façade	413	1	6,369,157.0	1,886,476.0	717.80	5.00	0.00	65	10.0	5.0	Y
Building 7 Deck	415	1	6,369,135.0	1,886,635.0	716.50	5.00	0.00	65	10.0	5.0	Y
Building 7 Floor 1 Façade	416	1	6,369,177.0	1,886,632.0	706.50	5.00	0.00	65	10.0	5.0	Y
Building 7 Floor 1 Façade	417	1	6,369,152.0	1,886,604.0	706.50	5.00	0.00	65	10.0	5.0	Y
Building 7 Floor 2 Façade	418	1	6,369,178.0	1,886,633.0	716.50	5.00	0.00	65	10.0	5.0	Y
Building 7 Floor 2 Façade	419	1	6,369,153.0	1,886,605.0	716.50	5.00	0.00	65	10.0	5.0	Y
Building 8 Deck	420	1	6,369,040.0	1,886,597.0	714.30	5.00	0.00	65	10.0	5.0	Y
Building 8 Floor 1 Façade	421	1	6,369,071.0	1,886,607.0	704.30	5.00	0.00	65	10.0	5.0	Y
Building 8 Floor 1 Façade	422	1	6,369,086.0	1,886,594.0	704.30	5.00	0.00	65	10.0	5.0	Y
Building 8 Floor 1 Façade	423	1	6,369,059.0	1,886,565.0	704.30	5.00	0.00	65	10.0	5.0	Y
Building 8 Floor 2 Façade	424	1	6,369,072.0	1,886,608.0	714.30	5.00	0.00	65	10.0	5.0	Y
Building 8 Floor 2 Façade	425	1	6,369,087.0	1,886,595.0	714.30	5.00	0.00	65	10.0	5.0	Y
Building 8 Floor 2 Façade	426	1	6,369,060.0	1,886,566.0	714.30	5.00	0.00	65	10.0	5.0	Y
Pool Area	427	1	6,369,142.0	1,886,419.0	708.00	5.00	0.00	65	10.0	5.0	Y
Recreation Room Façade	428	1	6,369,177.0	1,886,430.0	708.50	5.00	0.00	65	10.0	5.0	Y
Spa Area	429	1	6,369,142.0	1,886,445.0	708.00	5.00	0.00	65	10.0	5.0	Y

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INPUT: BUILDING ROWS 14-022

ISE 15 December 2014
R. Tavares Ph.D. TNM 2.5

INPUT: BUILDING ROWS
PROJECT/CONTRACT: 14-022
RUN: Peter Rios Estates Apartments

Building Row Name	Average Height ft	Building Percent %	Points No.	Coordinates (ground) X ft	Y ft	Z ft
Proposed Apt Bldg #1	30.00	50	229	6,369,193.0	1,886,526.0	708.00
			230	6,369,220.0	1,886,537.0	708.00
			231	6,369,248.0	1,886,467.0	708.00
			232	6,369,221.0	1,886,457.0	708.00
			233	6,369,194.0	1,886,524.0	708.00
Proposed Apt Bldg #2	30.00	50	234	6,369,236.0	1,886,446.0	708.80
			235	6,369,258.0	1,886,430.0	708.80
			236	6,369,211.0	1,886,371.0	708.80
			237	6,369,188.0	1,886,390.0	708.80
			238	6,369,236.0	1,886,449.0	708.80
Proposed Apt Bldg #3	30.00	50	239	6,369,173.0	1,886,393.0	707.50
			240	6,369,188.0	1,886,368.0	707.50
			241	6,369,124.0	1,886,330.0	707.50
			242	6,369,108.0	1,886,355.0	707.50
			243	6,369,173.0	1,886,394.0	707.50
Proposed Apt Bldg #4	30.00	50	244	6,369,059.0	1,886,386.0	707.00
			245	6,369,087.0	1,886,390.0	707.00
			246	6,369,098.0	1,886,314.0	707.00
			247	6,369,069.0	1,886,311.0	707.00
			248	6,369,059.0	1,886,383.0	707.00
Proposed Apt Bldg #5	30.00	50	249	6,369,052.0	1,886,474.0	707.60
			250	6,369,081.0	1,886,476.0	707.60
			251	6,369,088.0	1,886,401.0	707.60
			252	6,369,059.0	1,886,398.0	707.60

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INPUT: BUILDING ROWS **14-022**

			253	6,369,052.0	1,886,471.0	707.60
Proposed Apt Bldg #6	30.00	50	254	6,369,103.0	1,886,494.0	707.80
			255	6,369,175.0	1,886,513.0	707.80
			256	6,369,183.0	1,886,484.0	707.80
			257	6,369,111.0	1,886,465.0	707.80
			258	6,369,103.0	1,886,491.0	707.80
Proposed Apt Bldg #7	30.00	50	259	6,369,101.0	1,886,618.0	706.50
			260	6,369,170.0	1,886,644.0	706.50
			261	6,369,181.0	1,886,617.0	706.50
			262	6,369,111.0	1,886,590.0	706.50
			263	6,369,101.0	1,886,616.0	706.50
Proposed Apt Bldg #8	30.00	50	264	6,369,009.0	1,886,580.0	704.30
			265	6,369,078.0	1,886,606.0	704.30
			266	6,369,089.0	1,886,578.0	704.30
			267	6,369,019.0	1,886,552.0	704.30
			268	6,369,009.0	1,886,577.0	704.30

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RESULTS: SOUND LEVELS

14-022

ISE
R. Tavares Ph.D.

15 December 2014
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: 14-022
RUN: Peter Rios Estates Apartments
BARRIER DESIGN: INPUT HEIGHTS

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

ATMOSPHERICS: 68 deg F, 50% RH

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n	Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB			dBA	dB	dB	dB
Building 1 Floor 1 Façade	388	1	0.0	61.2	65	61.2	10	----		61.2	0.0	5	-5.0
Building 1 Floor 2 Façade	389	1	0.0	62.3	65	62.3	10	----		62.3	0.0	5	-5.0
Building 2 Floor 1 Façade	390	1	0.0	59.5	65	59.5	10	----		59.5	0.0	5	-5.0
Building 2 Floor 1 Façade	391	1	0.0	56.5	65	56.5	10	----		56.5	0.0	5	-5.0
Building 2 Floor 2 Façade	392	1	0.0	61.4	65	61.4	10	----		61.4	0.0	5	-5.0
Building 2 Floor 2 Façade	393	1	0.0	58.7	65	58.7	10	----		58.7	0.0	5	-5.0
Building 3 Floor 1 Façade	394	1	0.0	51.9	65	51.9	10	----		51.9	0.0	5	-5.0
Building 3 Floor 1 Façade	395	1	0.0	50.8	65	50.8	10	----		50.8	0.0	5	-5.0
Building 3 Floor 1 Façade	396	1	0.0	49.4	65	49.4	10	----		49.4	0.0	5	-5.0
Building 3 Floor 2 Façade	397	1	0.0	53.5	65	53.5	10	----		53.5	0.0	5	-5.0
Building 3 Floor 2 Façade	398	1	0.0	52.5	65	52.5	10	----		52.5	0.0	5	-5.0
Building 3 Floor 2 Façade	399	1	0.0	51.0	65	51.0	10	----		51.0	0.0	5	-5.0
Building 4 Floor 1 Façade	400	1	0.0	47.2	65	47.2	10	----		47.2	0.0	5	-5.0
Building 4 Floor 1 Façade	401	1	0.0	46.7	65	46.7	10	----		46.7	0.0	5	-5.0
Building 4 Floor 2 Façade	402	1	0.0	49.0	65	49.0	10	----		49.0	0.0	5	-5.0
Building 4 Floor 2 Façade	403	1	0.0	48.0	65	48.0	10	----		48.0	0.0	5	-5.0
Building 5 Floor 1 Façade	404	1	0.0	49.2	65	49.2	10	----		49.2	0.0	5	-5.0
Building 5 Floor 1 Façade	405	1	0.0	50.4	65	50.4	10	----		50.4	0.0	5	-5.0
Building 5 Floor 2 Façade	406	1	0.0	50.8	65	50.8	10	----		50.8	0.0	5	-5.0
Building 5 Floor 2 Façade	407	1	0.0	51.1	65	51.1	10	----		51.1	0.0	5	-5.0
Building 6 Floor 1 Façade	408	1	0.0	55.4	65	55.4	10	----		55.4	0.0	5	-5.0
Building 6 Floor 1 Façade	409	1	0.0	55.6	65	55.6	10	----		55.6	0.0	5	-5.0
Building 6 Floor 1 Façade	410	1	0.0	51.9	65	51.9	10	----		51.9	0.0	5	-5.0
Building 6 Floor 2 Façade	411	1	0.0	55.8	65	55.8	10	----		55.8	0.0	5	-5.0

C:\TNM25\Peter Rios Apartments 1 15 December 2014

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RESULTS: SOUND LEVELS 14-022

Building 6 Floor 2 Façade	412	1	0.0	56.3	65	56.3	10	----	56.3	0.0	5	-5.0
Building 6 Floor 2 Façade	413	1	0.0	53.1	65	53.1	10	----	53.1	0.0	5	-5.0
Building 7 Deck	415	1	0.0	58.0	65	58.0	10	----	58.0	0.0	5	-5.0
Building 7 Floor 1 Façade	416	1	0.0	61.7	65	61.7	10	----	61.7	0.0	5	-5.0
Building 7 Floor 1 Façade	417	1	0.0	57.6	65	57.6	10	----	57.6	0.0	5	-5.0
Building 7 Floor 2 Façade	418	1	0.0	62.0	65	62.0	10	----	62.0	0.0	5	-5.0
Building 7 Floor 2 Façade	419	1	0.0	58.2	65	58.2	10	----	58.2	0.0	5	-5.0
Building 8 Deck	420	1	0.0	53.1	65	53.1	10	----	53.1	0.0	5	-5.0
Building 8 Floor 1 Façade	421	1	0.0	54.0	65	54.0	10	----	54.0	0.0	5	-5.0
Building 8 Floor 1 Façade	422	1	0.0	53.0	65	53.0	10	----	53.0	0.0	5	-5.0
Building 8 Floor 1 Façade	423	1	0.0	51.9	65	51.9	10	----	51.9	0.0	5	-5.0
Building 8 Floor 2 Façade	424	1	0.0	54.7	65	54.7	10	----	54.7	0.0	5	-5.0
Building 8 Floor 2 Façade	425	1	0.0	54.5	65	54.5	10	----	54.5	0.0	5	-5.0
Building 8 Floor 2 Façade	426	1	0.0	52.7	65	52.7	10	----	52.7	0.0	5	-5.0
Pool Area	427	1	0.0	51.2	65	51.2	10	----	51.2	0.0	5	-5.0
Recreation Room Façade	428	1	0.0	53.2	65	53.2	10	----	53.2	0.0	5	-5.0
Spa Area	429	1	0.0	51.6	65	51.6	10	----	51.6	0.0	5	-5.0

Dwelling Units	# DUs	Noise Reduction Min dB	Avg dB	Max dB
All Selected	41	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

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