

6.7 Noise

6.7.1 Introduction

Riverside Public Utilities (RPU) proposes to build and operate a nominal 96-megawatt (MW) simple-cycle power plant on a 12-acre fenced site within the City of Riverside, California. This proposed facility is referred to as the Riverside Energy Resource Center (RERC) Project (Project). RPU will develop, build, own and operate the facility. RERC will supply the internal needs of the City of Riverside during summer peak electrical demands and will serve the City's minimum emergency loads in the event RPU is islanded from the external transmission system. No power from RERC will be exported outside of the city.

6.7.1.1 Project Description

The proposed site is owned by the City of Riverside and is located adjacent to the City of Riverside's Wastewater Treatment Plant (WWTP) in a light industrial/manufacturing area. The RERC will consist of two aero-derivative combustion turbine generators with SCRs, an on-site substation, approximately 1.75 miles of 69kV transmission line, natural gas and water supply interconnection, and on-site administration building and warehouse. The power plant and associated administration building and warehouse will occupy approximately 8 of 12 acres with the additional 4 acres reserved for equipment storage and construction parking. The entire plant perimeter will be fenced with a combination of chain-link fencing and architectural block walls.

In general, the proposed site is flat, with a slight slope downhill from south to north. As indicated previously, the site is located within an industrial area. The nearest noise-sensitive receptors considered in this study include residential properties 2,870 feet north; 4,000 feet south; 4,100 feet east; and 4,130 feet southwest of the Project site. The nearest park and school are located 3,320 feet and 3,600 feet north of the site, respectively. Other noise-sensitive locations include the nearest church, at a distance of 1,200 feet to the southeast, and a recreational trail located 790 feet northeast of the site. This study also considers potential noise impacts at the nearest offices, located 690 feet to the east, and at the nearest industrial properties located 330 feet east and 620 feet south of the Project site.

The proposed 69kV transmission line from the RERC would run south along the east side of Payton Avenue for approximately 1,200 feet, turn east at Jurupa Avenue, and follow along the south side of Jurupa Avenue for approximately 7,000 feet to Sheppard Street where it will turn southeast and run along the southwest side of Sheppard Street for approximately 800 feet until it reaches the Mt. View Substation. The entire length of the line is estimated to be 9,000 feet. The line route is generally in a Light Manufacturing zone (M-1). The portion running along Jurupa Avenue and Sheppard Street constitutes the boundary between Light Manufacturing (M-1) and Single-family Residential (R-1).

The R-1 zoned portion begins approximately 6,000 feet after leaving the plant and is approximately 3,000 feet in length.

6.7.2 Acoustical Definitions

Sound pressure can be measured in units called microPascals (μPa). However, expressing sound levels in terms of μPa would be very cumbersome since it would require a wide range of very large numbers. For this reason, sound pressure levels are described in logarithmic units of ratios of actual sound pressures to a reference pressure squared. These units are called bels. In order to provide a finer resolution, a bel is subdivided into 10 decibels, abbreviated dB.

Since decibels are logarithmic units, sound pressure levels cannot be added or subtracted by ordinary arithmetic means. For example, if one machine produces a sound pressure level of 70 dB, two machines running simultaneously would not produce 140 dB. In fact, they would combine to produce 73 dB. This same principle can be applied to other quantities as well. In other words, doubling the number of machines will increase the noise level by 3 dB. Conversely, halving the number of machines will reduce the noise level by 3 dB.

Sound pressure level alone is not a reliable indicator of loudness. The frequency or pitch of a sound also has a substantial effect on how humans will respond. While the intensity of the sound is a purely physical quantity, the loudness or human response depends on the characteristics of the human ear.

Human hearing is limited not only to the range of audible frequencies, but also in the way it perceives the sound pressure level in that range. In general, the healthy human ear is most sensitive to sounds between 1,000 Hz and 5,000 Hz, and perceives both higher and lower frequency sounds of the same magnitude with less intensity. In order to approximate the frequency response of the human ear, a series of sound pressure level adjustments is usually applied to the sound measured by a sound level meter. The adjustments, or weighting network, are frequency dependent.

The A-scale approximates the frequency response of the average young ear when listening to most ordinary everyday sounds. When people make relative judgments of the loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. The A-weighted sound level of long-term noise-producing activities within and around a community varies considerably with time. Measurements of this varying noise level are accomplished by recording values of the A-weighted level during representative periods within a specified portion of the day. The values considered in this study are:

Leq: The energy equivalent (or average) sound level. This is the descriptor used by Riverside County to determine compliance with its regulations.

L50: The median sound level. This is the sound level exceeded 50 percent of the time during a measurement, and is the descriptor used by the City of Riverside to determine compliance with its regulations.

It is recognized that a given level of noise may be more or less tolerable depending on the duration of exposure experienced by an individual. There are numerous measures of noise exposure that consider not only the A-level variation of noise but also the duration of the disturbance. The State Department of Aeronautics and the California Commission on Housing and Community Development have adopted the community noise equivalent level (CNEL). This measure weights the average noise levels for the evening hours (7:00 p.m. to 10:00 p.m.), increasing them by 5 dB, and weights the late evening and morning hour noise levels (10:00 p.m. to 7:00 a.m.) by 10 dB. The daytime noise levels are combined with these weighted levels and are averaged to obtain a CNEL value. Both the City and County of Riverside use the CNEL descriptor.

6.7.3 Ambient Noise Survey

In order to document the existing noise environment, measurements were obtained between March 15 and 19, 2004, at 18 locations throughout the study area. Figure 6.7-1 at the end of this section illustrates the measurement locations.

Long-term (25-hour) monitoring was conducted at three locations in the study area. At each location, noise levels were measured at microphone heights of 5 feet and 15 feet to correspond with ground floor and second floor receptors. The results of the long-term measurements are provided in Appendix 6.7-A and are summarized in Table 6.7-1 at the end of this section. The monitoring location designated Long-Term 1 (LT-1) was in the rear yard of the residence at 6495 Thunder Bay Trail, representing the nearest residential community north of the Project site. Position LT-2 was in the rear yard of the residence at 8835 Alabama Street. This residence is located west of the Project site. Lastly, monitoring location LT-3 was located in the rear yard of the residence at 6401 Vickers Drive, which is southeast of the site. All long-term monitoring was conducted using Larson Davis Model 820 Type 1 community noise analyzers.

Short-term (20-minute duration) noise monitoring was conducted at 12 locations throughout the study area during random hours of the day. These attended measurements were obtained with a Type 2 Larson Davis Model 712 sound level meter. The results of the short-term measurements are provided in Appendix 6.7-A and are summarized in Table 6.7-2 at the end of this section.

All monitoring equipment used in the study was programmed for slow time response and the A-weighted decibel scale. To ensure accuracy, the equipment was calibrated before each measurement. The accuracy of the calibrator is maintained through a program established by the manufacturer, and is traceable to the National Bureau of Standards. All instrumentation meets the requirements of the American National Standards Institute (ANSI) S1.4-1971.

Weather conditions during the survey period were generally clear, with temperatures that ranged from 48° to 91° Fahrenheit. Relative humidity varied from 25 percent to 60 percent, and the average wind speed ranged from 0 to 9 mph. These conditions were conducive to accurate measurements. The weather observation notes, and data collected during each measurement, are included on the Noise Survey forms provided in Appendix 6.7-A.

Existing ambient noise in the study area is generated primarily by traffic on the local streets, operations on the Metrolink/Union Pacific rail line north of the Project site, flight activities from Riverside Municipal Airport, industrial activities, the wastewater treatment plant, and the cogeneration facility.

6.7.4 Recommended A-Weighted Sound Level Design Goals

The noise levels generated by the proposed Project will propagate to areas within both the City and County of Riverside. Therefore, the noise regulations and ordinances of these two jurisdictions must be considered when evaluating the potential impact of the Project.

Title 5 of the City of Riverside Municipal Code identifies the following noise standards for various land use categories shown in Table 6.7-3:

Table 6.7-3 Noise Standards, City of Riverside, California

Land Use	Noise Level, L50
Residential	45 dB(A), 10 pm to 7 am 55 dB(A), 7 am to 10 pm
Office/Commercial	65 dB(A), anytime
Industrial	70 dB(A), anytime

Construction noise is only subject to the above standards if it occurs on a weekday between 7 p.m. and 7 a.m., on a Saturday between 5 p.m. and 8 a.m., or at any time on a Sunday or a federal holiday. The City’s General Plan identifies noise/land use compatibility guidelines (not standards) of 60 dB CNEL for residential, school and church uses; 65 dB CNEL for parks; 67.5 dB CNEL for office, commercial and professional buildings; and 70 dB CNEL for industrial and manufacturing uses.

The Riverside County Department of Health specifies that project-generated noise, when experienced at a nearby dwelling or school, must not exceed an Leq of 65 dB(A) between 7 a.m. and 10 p.m. or 45 dB(A) between 10 pm and 7 am. At residential properties, the CNEL may not exceed 65 dB.

The California Energy Commission (CEC) regulations regarding new noise sources evaluate their impact on residential and recreational receptors with respect to an increase over pre-existing noise levels. The CEC defines the area potentially impacted by the

Project as that area where there would be an increase of 5 dB or more above existing noise levels during either construction or operation. Based on the noise monitoring conducted in March 2004, the following CEC impact criteria thresholds in Table 6.7-4 can be established for the Project:

Table 6.7-4 CEC Impact Criteria Thresholds

Location	CNEL		Leq	
	Measured Existing	CEC Threshold	Measured Existing	CEC Threshold
LT-1, nearest residence to the north	75 dB	80 dB	45 dB(A)	50 dB(A)
LT-2, nearest residence to the west	62 dB	67 dB	48 dB(A)	53 dB(A)
LT-3, nearest residence to the southeast	54 dB	59 dB	35 dB(A)	40 dB(A)
ST-5, recreational trail to the north	N/A	N/A	46 dB(A)	51 dB(A)

The most stringent criteria will be used in this study to assess impact. These are:

1. For residential and school properties in Riverside County (i.e., north of the Project site), an Leq of 45 dB(A) or less, as required by the County's Department of Health.
2. At the recreational trail north of the Project site, an Leq of 51 dB(A) or less, which represents an increase of 5 dB(A) over existing levels, as required by the CEC.
3. At properties in the City of Riverside, the noise ordinance standards of 45 dB(A) or less for residential properties; 65 dB(A) or less for office, commercial and church properties; and 70 dB(A) or less for industrial properties.

6.7.5 Noise Prediction Modeling of Operational Noise

The preliminary plant design includes a listing of each piece of major equipment to be used at the site, as well as its location. Sound power levels for most of the equipment items were provided by vendors. The major noise sources associated with the Project are expected to include two General Electric LM6000 NxGEN combustion turbine generator

(CTG) packages with selective catalytic reduction (SCR) fans, ammonia evaporation skids, chiller package, auxiliary cooling tower, fuel gas compressor skids, and the tempering air fans. The CTG packages will include all associated noise improvements such as silencers and enhanced enclosure walls. In addition, the chiller package will be enclosed and the fuel gas compressor skids will be partially enclosed with acoustical panels. Multiples of the same equipment items were accounted for and added together to estimate the composite sound power level for all of the major equipment currently planned to be used on the site. This composite level was applied to the acoustic center of the Project site and used in the prediction of far field noise levels. For receptors in the near field of the Project site (e.g., the recreational trail and the wastewater treatment plant offices), the noise level of each equipment item was predicted separately based on its actual location rather than the acoustic center of the site. The spectral sound power data used in the analysis, as well as the calculations, are provided in Appendix 6.7-A.

The formula used to calculate the sound pressure level (SPL) based on an equipment item's sound power level (PWL) and distance is as follows:

$$\text{SPL} = \text{PWL} - 20 \log(r) + 2.5 \text{ dB(A)},$$

where r is the distance between the equipment item and the receptor (in feet).

Additional propagation losses due to air absorption were considered using recognized procedures. Average meteorological conditions, specifically wind speed and direction, were also considered in the analysis to determine if they would have a significant impact on sound propagation. Depending on the direction the wind is traveling relative to the sound, it can greatly increase or decrease sound levels at a receptor's location. Based on long-term weather monitoring, the wind at the Project site is from the west about 50 percent of the year. Average speeds range from 2 to 6 mph. Recognized procedures indicate that wind, at these speeds, will have no impact on sound propagation. However, to provide a conservative analysis, sound attenuation due to ground absorption has not been considered in this study.

6.7.6 Environmental Consequences

6.7.6.1 Power Plant Operational Noise

The calculations provided in Appendix 6.7-A indicate that the normal operational noise level from the proposed power plant complies with the City and County of Riverside's noise standards, and with the CEC's noise impact criteria thresholds. Therefore, additional mitigation (beyond that already included in the Project's design) is not required. Table 6.7-5 shows the predicted noise levels at the receptors considered in this study. A check mark in the table indicates that the noise level complies with the applicable standards.

Figure 6.7-2 illustrates the area where there is a potential increase of 5 dB or more over existing noise levels during normal plant operations. As Table 6.7.6 and Figure 6.7-2 at

the end of this section indicate, there are no residences or recreational areas located within the noise impact area. Thus, no noise impact will be created by the RERC.

In summary, the proposed RERC, as designed, is expected to comply with local regulations, and is not expected to either increase ambient noise levels by 5 dB at a noise-sensitive receptor, or produce a significant impact.

6.7.6.2 Power Plant Construction Noise

Construction of the power plant will occur over several months, and is scheduled to take place only on weekdays between 7 a.m. and 7 p.m., and Saturdays between 8 a.m. and 5 p.m. No construction will occur on Sundays or federal holidays. Thus, project construction will comply with the local regulations.

During construction a variety of equipment will be on site at any given time. Table 6.7-7 at the end of this section provides a sample of the noisiest equipment that may be used at the site. If all of this equipment operated simultaneously, it would produce a noise level of 89 dB(A) at a distance of 50 feet. Assuming a duty cycle of 50 percent for the equipment, and taking into account the reduction that will occur due to distance and air attenuation, it may be estimated that the Leq at the nearest noise-sensitive receptors will be as follows in Table 6.7-5.

Table 6.7-5 Estimated Leq at Nearest Noise-Sensitive Receptors

Location	Estimated Construction Noise Level	Measured Existing Ambient	Estimated Cumulative Noise Level	Increase
Residences north of site (LT-1)	48 dB(A)	57 dB(A)	58 dB(A)	1 dB
Residences west of site (LT-2)	45 dB(A)	50 dB(A)	51 dB(A)	1 dB
Residences east of site (LT-3)	45 dB(A)	48 dB(A)	50 dB(A)	2 dB
Recreational trail north of site	50 dB(A) ⁵	46 dB(A)	51 dB(A)	5 dB

As indicated in Table 6.7-5 above, project construction is expected to increase noise levels at the nearest sensitive receptors by 5 dB or less. Therefore, construction noise will not create an impact.

It is possible that some limited blasting may be required during the construction to remove some large boulders at the site. If this occurs, the construction noise levels will exceed the CEC threshold. This impact cannot be fully mitigated. However, mitigation

⁵ Includes barrier effect of slope on the north side of the site.

measures as described in Section 6.7.7 will significantly reduce the noise levels caused by the blasting.

6.7.6.3 Transmission Line Operations

RPU is planning a 1.75-mile long 69kV transmission line. This will connect the RERC with the existing Mt. View Substation located east of the Project site. For the majority of its length, the transmission line will be located adjacent to industrially zoned property. However, the last 3,000 feet of line will be within about 40 feet of residential property.

The noise sources associated with the power transmission that may impact these residential properties include corona noise and a very low magnetostriction hum from the conductors. Corona noise is characterized as a buzz or hum and is usually worse in rainy or foggy conditions when the conductors are wet.

Based on information provided by the Electric Power Research Institute (EPRI), audible noise from a 69kV transmission line will be less than 40 dB(A) at a distance of 40 feet from the outside conductor at ground level. Therefore, no significant noise impact will occur due to the transmission line. The Project's switchyard is not proposed to be located near any noise-sensitive land uses. Therefore, the switchyard will also not create a significant impact.

6.7.6.4 Transmission Line Construction

The construction activities associated with the transmission line include digging footings, pouring concrete and erecting towers or poles using a crane. Conductors will be strung by conventional methods using cable trucks and winches. All of these activities are temporary and will not generate unusual noise.

Construction of the transmission line is scheduled to take place only on weekdays between 7 a.m. and 7 p.m., and Saturdays between 8 a.m. and 5 p.m. No construction will occur on Sundays or federal holidays. Thus, the transmission line construction will comply with local regulations. Although the construction will temporarily elevate the ambient noise levels at the residences identified in Section 6.7.6.2, the impact is not considered to be significant.

6.7.6.5 Operation of Access Road

The Project site will be accessed via an existing paved section of Payton Avenue. Within the site, additional roads will be constructed to gain access to the various equipment areas. These roads will be used for worker access, and to move equipment and materials to the RERC site. Traffic associated with the Project will be minimal, and noise associated with the use of the roads will be insignificant at any noise-sensitive receptor. Therefore, operation of the access road will not create an impact.

6.7.6.6 Construction of Access Road

There are no improvements to Payton Avenue associated with the Project. However, construction of the on-site access roads will generate noise from the use of heavy machinery such as graders, scrapers and bulldozers. The nearest noise-sensitive receptor is the recreational trail located about 790 feet north of the acoustic center of the Project site, and buffered from noise at the site by a 35-foot high berm. The noise from construction of the on-site roads will be of very limited duration, and will only occur on weekdays between 7 a.m. and 7 p.m., and on Saturdays between 8 a.m. and 5 p.m. This complies with the local regulations, and no significant noise impacts are associated with the construction of the access road.

6.7.7 Noise Control Measures

6.7.7.1 Power Plant Operations

Noise-1: At plant locations where the noise level is above 85 dB(A), signs will be posted identifying them as high noise level areas, and hearing protection will be required. A hearing conservation program will be implemented as required by the California Department of Industrial Relations, Division of Occupational Safety and Health (Cal-OSHA) regulations.

6.7.7.2 Power Plant Construction

Noise-2: The following noise control measures will be implemented in order to reduce construction noise to less-than-significant levels:

- ♦ The construction contractor will comply with all federal and local regulations on truck and construction equipment noise. The contractor will ensure the use of functioning exhaust mufflers and engine silencers on all engine-driven equipment, and avoid unnecessary equipment idling for long periods.
- ♦ The use of noise-producing signals, including horns, whistles, alarms and bells, will be for safety warning purposes only.
- ♦ No construction-related public address loudspeaker, two-way radio or music system will be audible at any adjacent noise-sensitive land use.
- ♦ The construction contractor will implement a noise awareness program for construction workers and a noise complaint process for the surrounding community. The on-site construction supervisor will be authorized to receive noise complaints and will be responsible for their resolution.
- ♦ If blasting is employed during construction, the blast target will be completely enveloped with rubber blast mats. The surrounding community will be notified of the date and time the blasting will occur.

Noise-3: At construction site locations where the noise level is above 85 dB(A), signs will be posted identifying them as high noise level areas, and hearing protection will be

required. A hearing conservation program will be implemented as required by the California Department of Industrial Relations, Division of Occupational Safety and Health (Cal-OSHA) regulations.

6.7.7.3 Transmission Line Operation

Operation of the proposed 69kV transmission line will not create a significant noise impact. Therefore, noise mitigation is not required.

6.7.7.4 Transmission Line Construction

Noise-4: The following noise control measures will be implemented in order to reduce construction noise to less-than-significant levels:

- ◆ The construction contractor will comply with all federal and local regulations on truck and construction equipment noise. The contractor will ensure the use of functioning exhaust mufflers and engine silencers on all engine-driven equipment, and avoid unnecessary equipment idling for long periods.
- ◆ The use of noise-producing signals, including horns, whistles, alarms and bells, will be for safety warning purposes only.
- ◆ No construction-related public address loudspeaker, two-way radio or music system will be audible at any adjacent noise-sensitive land use.
- ◆ The construction contractor will implement a noise awareness program for construction workers and a noise complaint process for the surrounding community. The on-site construction supervisor will have the responsibility and authority to receive and resolve noise complaints.

6.7.8 Laws, Ordinances Regulations and Standards (LORS)

The proposed Project will meet or exceed all applicable LORS pertaining to noise, as discussed in the following sections. Section 6.7.7 provides proposed recommended mitigation measures in order to ensure compliance with applicable LORS and/or to reduce potentially significant impacts to less-than-significant levels.

6.7.8.1 Federal

There are a number of federal laws and guidelines that address a broad range of noise and vibration issues, some of which are not directly related to the proposed Project. Several of the more significant documents are listed below:

- ◆ National Environmental Policy Act (42 United States Code [USC] 4321, et seq.) (Public Law 91-190) (40 Code of Regulations [CFR] Section 1506.5).
- ◆ Noise Control Act of 1972 (42 USC 4910).
- ◆ The U. S. Environmental Protection Agency (U.S. EPA) recommendations from *Information on Levels of Environmental Noise Requisite to Protect Public Health*

and Welfare with an Adequate Margin of Safety, NTIS 550\9-74-004, USEPA, Washington, D.C., March 1974.

- ◆ Federal Energy Regulatory Commission Guidelines on noise emissions from compressor stations, power plants, substations, and transmission lines (18 CFR 157.206[d] 5).
- ◆ Federal Highway Administration Noise Abatement Procedures (23 CFR Part 772).
- ◆ Housing and Urban Development Environmental Standards (24 CFR Part 51).
- ◆ OSHA Occupational Noise Exposure; Hearing Conservation Amendment (CFR 48 (46), 9738-9785 (1983)).

The EPA has not promulgated standards or regulations for environmental noise generated by power plants. However, as listed above, the EPA has published a guideline (EPA Levels Document, Report No. 556/9-74-664) containing recommendations that limit outdoor noise levels at residential properties to an Ldn of 55 dB. (Ldn, or day-night sound level, is a weighted average noise exposure similar to CNEL.) The recommendation for indoors is an Ldn of 45 dB. The agency is careful to stress that the recommendations do not consider technical or economic feasibility issues, and therefore should not be construed as standards or regulations.

6.7.8.2 State of California

Cal-OSHA (8 California Code of Regulations, General Industrial Safety Orders, Article 105, Control of Noise Exposure, Section 5095) requires that all in-plant noise levels be limited to 85 dB(A) at 3 feet from equipment sources to protect worker safety. If areas of the plant exceed 85 dB(A), then a hearing conservation program must be implemented by RPU.

There will be areas within the plant where the noise level exceeds 85 dB(A), but none of them will be normal employee work stations. Full-time operators and maintenance personnel will have only limited exposure to these high noise levels under normal circumstances. Signs will be posted requiring the use of hearing protection in areas where the noise level exceeds 85 dB(A).

The state of California (in CCR 65302f) requires local jurisdictions to prepare General Plans that include Land Use and Noise Elements. These Noise Elements must use the CNEL or Ldn noise descriptor to assess noise/land use compatibility.

The CEC (1997) requires that noise be considered when residences, hospitals, libraries, schools, places of worship, or other facilities where quiet is an important attribute, are located within the area impacted by the proposed Project. This is the area where the proposed Project may increase the existing noise levels by 5 dB or more during either construction or operation.

6.7.8.3 Local Noise Regulations

The Project is subject to the noise control policies of the City and County of Riverside. The noise levels generated by the Project must comply with the limits established for noise-sensitive uses within the respective jurisdiction.

Table 6.7-8 shows the results of the CEQA Environmental Checklist for noise.

Table 6.7-8 CEQA Environmental Checklist- Noise

Environmental Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
11. NOISE. <i>Would the project result in:</i>				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?		X		
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?			X	
c) A substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project?		X		
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the Project?		X		
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?				X
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?				X
g) Exceed an applicable LRDP or Program EIR standard of significance?				X

6.7.9 Agency Contacts

Agency	Contact/Title	Telephone
City of Riverside Planning Department 3900 Main Street, Third Floor Riverside, CA 92522	Ken Gutierrez	909/826-5371
County of Riverside Planning Department 4080 Lemon Street Riverside, CA 92502	Robert Johnson Planning Director	909/955-1800

6.7.10 Schedule of Other Required Permits/Approvals

No permits or additional approvals are required.

6.7.11 References

Beranek and Ver. 1992. *Noise and Vibration Control Engineering, Principles and Applications*. Wiley Interscience, New York.

Calderone and Garbin. 2001. *Demolition Range Noise Abatement Technique Demonstration and Evaluation for the McAlester Army Ammunition Plant*. Sandia National Laboratories Report SAND2001-2267.

California Energy Commission (CEC). 2000. *Rules of Practice and Procedure, Power Plant Site Certification Regulations*. February.

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City of Riverside, Municipal Code, Chapter 16.08, *Building Code*.

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County of Riverside, Health Services Agency, Department of Public Health. 2002. *Requirements for Determining and Mitigating Non Transportation Noise Source Impacts to Residential Properties*. November.

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County of Riverside. *Noise Element of the General Plan*, Section E.

Electrical Energy Institute (EEI). 1983. *Electric Power Plant Environmental Noise Guide*, 2nd Edition, Revised.

Harris, Cyril M. 1991. *Handbook of Acoustical Measurements and Noise Control*. 3rd Edition. McGraw-Hill, Inc. New York.

Table 6.7-1 Long-Term Noise Level Summary, March 15-19, 2004

Site ID	Location	25 Hr. Leq, dB(A)	Ldn	CNEL	25 Hr. Average L90, dB(A)	25 Hr. Average L50, dB(A)	25 Hr. Average L10, dB(A)
LT-1	Rear yard of residence at 6495 Thunder Bay Trail (north of site)	60 / 68	67 / 75	67 / 75	42 / 46	45 / 49	55 / 61
LT-2	Rear yard of residence at 8838 Alabama Street (west of site)	54 / 57	59 / 62	59 / 62	45 / 48	49 / 51	56 / 57
LT-3	Rear yard of residence at 6401 Vickers Drive (east of site)	48 / 51	50 / 53	50 / 54	42 / 45	44 / 48	49 / 53

Legend: 1st floor / 2nd floor

Table 6.7-2 Short-Term Noise Measurements, March 16-17, 2004

Site ID	Measurement Location	Measurement Period				Measurement Results, dB(A)					
		Date	Start Time	Duration (min)	Predominant Noise Sources	Leq	Lmax	Lmin	L90	L50	L10
ST-1	Clay Park	3/16/04	10:22	21	Traffic, aircraft, trains, birds, dogs	56	73	76	48	51	59
ST-2	Indian Hill School	3/17/04	10:15	22	Traffic, children	48	68	37	39	42	50
ST-3	Residence at 7982 Claudette Dr.	3/16/04	9:01	21	Industrial, traffic, train, aircraft, birds	61	79	46	48	51	59
ST-4	Residence at 6465 Avenue Juan Diaz	3/17/04	18:06	20	Traffic, aircraft, dogs, trains, birds	57	81	42	43	46	53
ST-5	Recreational trail	3/17/04	14:12	20	Industrial, aircraft, trains, birds	46	61	38	40	42	47
ST-6	Administrative offices at water treatment plant	3/16/04	12:17	20	Industrial, trains	55	65	50	52	54	58
ST-7	Maaco, 5925 Payton	3/16/04	13:04	20	Industrial, train, aircraft	61	76	52	54	58	65
ST-8	Industry, 7171 Jurupa, Unit 30	3/16/04	13:38	21	Industrial, aircraft, dogs	58	71	47	51	56	60
ST-9	Church, 7110 Jurupa, Unit 5	3/16/04	14:19	20	Industrial, aircraft, radio	59	81	50	52	55	59
ST-10	Residence, 6344 Jurupa	3/17/04	17:02	20	Traffic	70	84	51	60	68	73
ST-11	Residence, 6896 Palos	3/17/04	11:14	20	Traffic, aircraft	45	57	38	40	43	48
ST-12	Residence, 6711 Doolittle	3/17/04	15:01	16	Traffic, aircraft	59	79	44	47	50	55

Table 6.7-6 Compliance with Noise Standards
(√ = Satisfied)

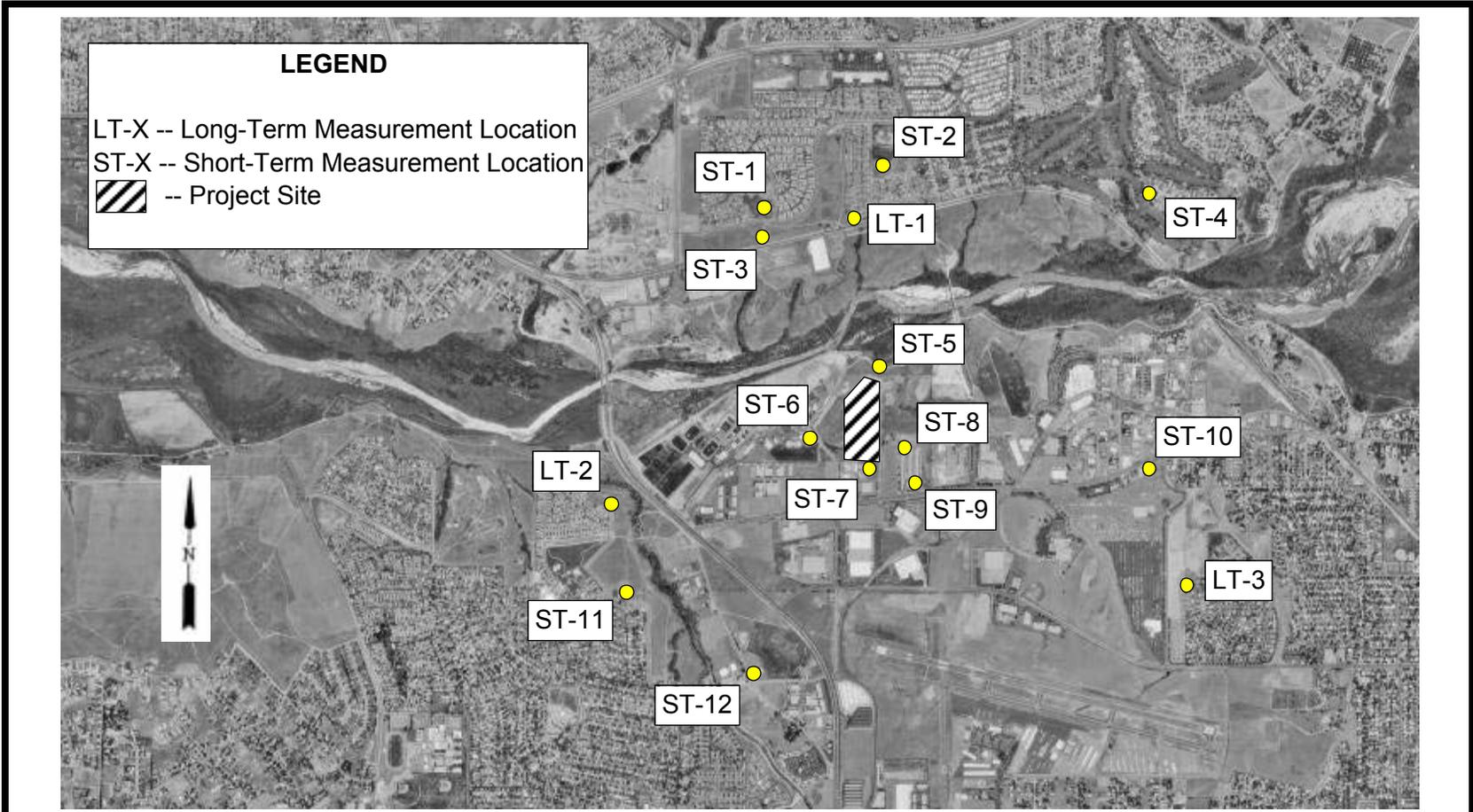
Location	City of Riverside	County of Riverside	CEC
LT-1	N/A	42 / 45 dB(A) √	√ by 3 dB
LT-2	37 / 45 dB(A) √	N/A	√ by 5 dB
LT-3	33 / 45 dB(A) √	N/A	√ by 3 dB
ST-1	N/A	N/A	√ by 5 dB
ST-2	N/A	39 / 45 dB(A) √	√ by 4 dB
ST-3	N/A	42 / 45 dB(A) √	√ by 5 dB
ST-4	37 / 45 dB(A) √	N/A	√ by 5 dB
ST-5	N/A	N/A	√ by 0 dB
ST-6	55 / 65 dB(A) √	N/A	N/A
ST-7	60 / 70 dB(A) √	N/A	N/A
ST-8	58 / 70 dB(A) √	N/A	N/A
ST-9	53 / 65 dB(A) √	N/A	√ by 4 dB
ST-10	37 / 45 dB(A) √	N/A	√ by 5 dB
ST-11	37 / 45 dB(A) √	N/A	√ by 4 dB
ST-12	38 / 45 dB(A) √	N/A	√ by 5 dB

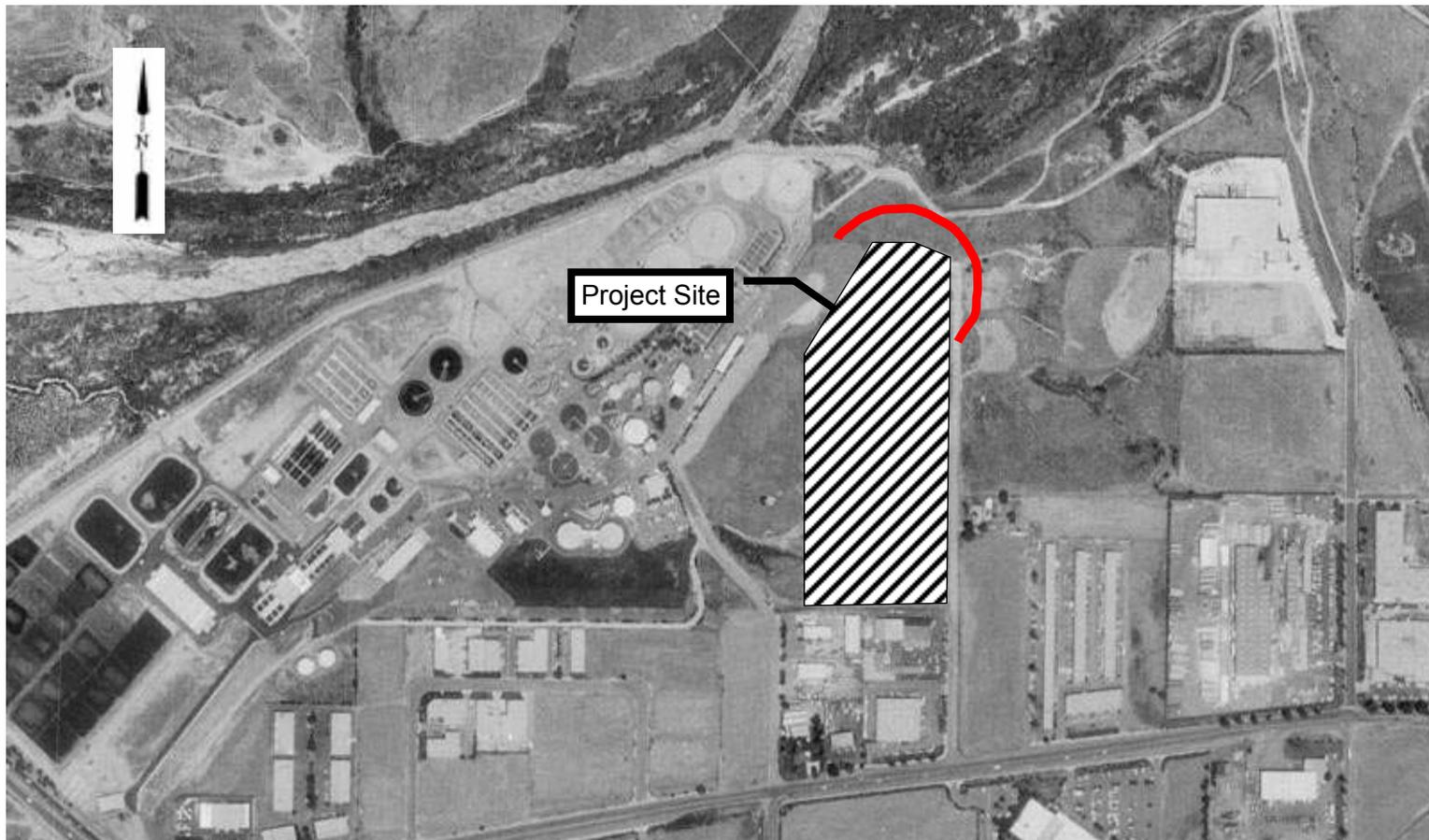
Legend: Estimated project noise level / standard

N/A: Not applicable

Table 6.7-7 Maximum Noise Levels from Typical Construction Equipment

Equipment	Estimated Maximum Noise Level at 50 feet, dB(A)
Backhoe	83
Large Mobile Crane	85
Dozer	88
Grader	86
Scraper	89
Dump Trucks	87





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Site Vicinity Map with Noise Contour

6.7-2