11 NOISE

INTRODUCTION

This chapter describes the potential noise impacts associated with the implementation of the proposed project at the four alternative sites. The proposed project has identified four alternative locations and Table NS-1 provides location and current use information for each of the four sites. This chapter will first identify the regulatory setting and the non-regulatory setting pertaining to noise. Each location will be analyzed separately, by comparing the existing noise level to the projected noise level, followed by the impacts and analysis discussion.

Table NS-1: Site Location Alternatives

Site Name	Parcel Number(s)	Current Use	Zoning
Twin Cities Road West (80 acres)	146-0080-040	General Agricultural	AG 80 (F)
Twin Cities Road East (276 acres)	146-0080-047 146-0080-048 146-0080-049	Livestock Grazing	AG 80 (F)
Scott Road (134 acres)	072-0110-070 072-0110-071 072-0110-072	Livestock Grazing	AG 80
Kiefer Landfill	126-0090-038	Future Landfill modules #8 and #9	AG 80

The acoustical terminology used throughout this chapter has been defined below in Table NS-2.

Table NS-2: Acoustical Terminology Definitions

TERM	DEFINITION
Ambient Noise Level	The composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.
Intrusive Noise	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.
Decibel, dB	A unit for describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure.
Community Noise Equivalent Level, CNEL	The average equivalent sound level during a 24-hour day, obtained after addition to approximately five decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. And ten decibels to sound levels in the night before 7:00 a.m. and after 10:00 p.m.
Day/Night Noise Level, L_{dn}	The average equivalent sound level during a 24-hour day, obtained after addition of ten decibels to sound levels in the night after 10:00 p.m. and before 7:00 a.m.
Equivalent Noise Level, L_{eq}	The average noise level during the measurement or sample period. L_{eq} is typically computed over 1, 8 and 24-hour sample periods.
L_{max}, L_{min}	The maximum or minimum sound level recorded during a noise event.
L_n	The sound level exceeded "n" percent of the time during a sample interval. L_{10} equals the level exceeded 10 percent of the time (L_{90}, L_{50}, etc.).
Noise Exposure Contours	Lines drawn about a noise source indicating constant levels of noise exposure. CNEL and L_{dn} contours are frequently utilized to describe community exposure to noise.
Sound Exposure Level, SEL; or Single Event Noise Exposure Level, SNEL	The level of noise accumulated during a single noise event, such as an aircraft overflight, with reference to a duration of one second. More specifically, it is the time integrated A-weighted squared sound pressure level for a stated time interval or event, based on a reference pressure of 20 micropascals and a reference duration of one second.
Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighted filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear and gives good correlation with subjective reactions to noise.
Source: Sacramento County General Plan Noise Element, Appendix A, 1993	

REGULATORY SETTING

In order to limit population exposure to physically and/or psychologically damaging noise levels, the State of California and Sacramento County have established standards and ordinances to control noise.

STATE OF CALIFORNIA

The California Department of Health Services (DHS) Office of Noise Control has studied the correlation of noise levels and their effects on different land uses. As a result, the DHS has established four categories for judging the severity of noise intrusion on specified land use. Noise in the "normally acceptable" category places no undue burden on affected receptors and would need no mitigation. As noise rises into the "conditionally acceptable" range, some mitigation of exposure, as established by an acoustic study, would be warranted. At the next level, noise intrusion is so severe that it is classified "normally unacceptable" and would require extraordinary noise reduction measures to avoid disruption. Finally, noise in the "clearly unacceptable" category is so severe that it can not be mitigated.

COUNTY GENERAL PLAN NOISE ELEMENT

The purpose of the Sacramento County General Plan Noise Element is to protect the citizens of the County from exposure to excessive noise. The policies of the Noise Element define the limits of noise exposure for sensitive land uses. There are policies for noise receptors or sources, transportation or non-transportation noise, and interior and exterior noise.

The goal of the Noise Element is to (1) protect citizens of Sacramento County from the harmful and annoying effects of exposure to excessive noise and (2) to protect the economic base of Sacramento County by preventing incompatible land uses from encroaching upon existing or planned noise-producing uses.

The following Sacramento County General Plan Noise Element Policies pertain to the proposed project:

NO-2 Noise created by new non-transportation noise sources shall be mitigated so as not to exceed any of the noise level standards of Table II-1, as measured within the property line of any affected residentially designated lands or residential land use situated in the unincorporated area.

NO-3 Where proposed non-transportation noise sources are likely to produce noise levels exceeding the performance standards of Table II-1 (refer to Table NS-3 below) at existing or planned residential uses, an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design.

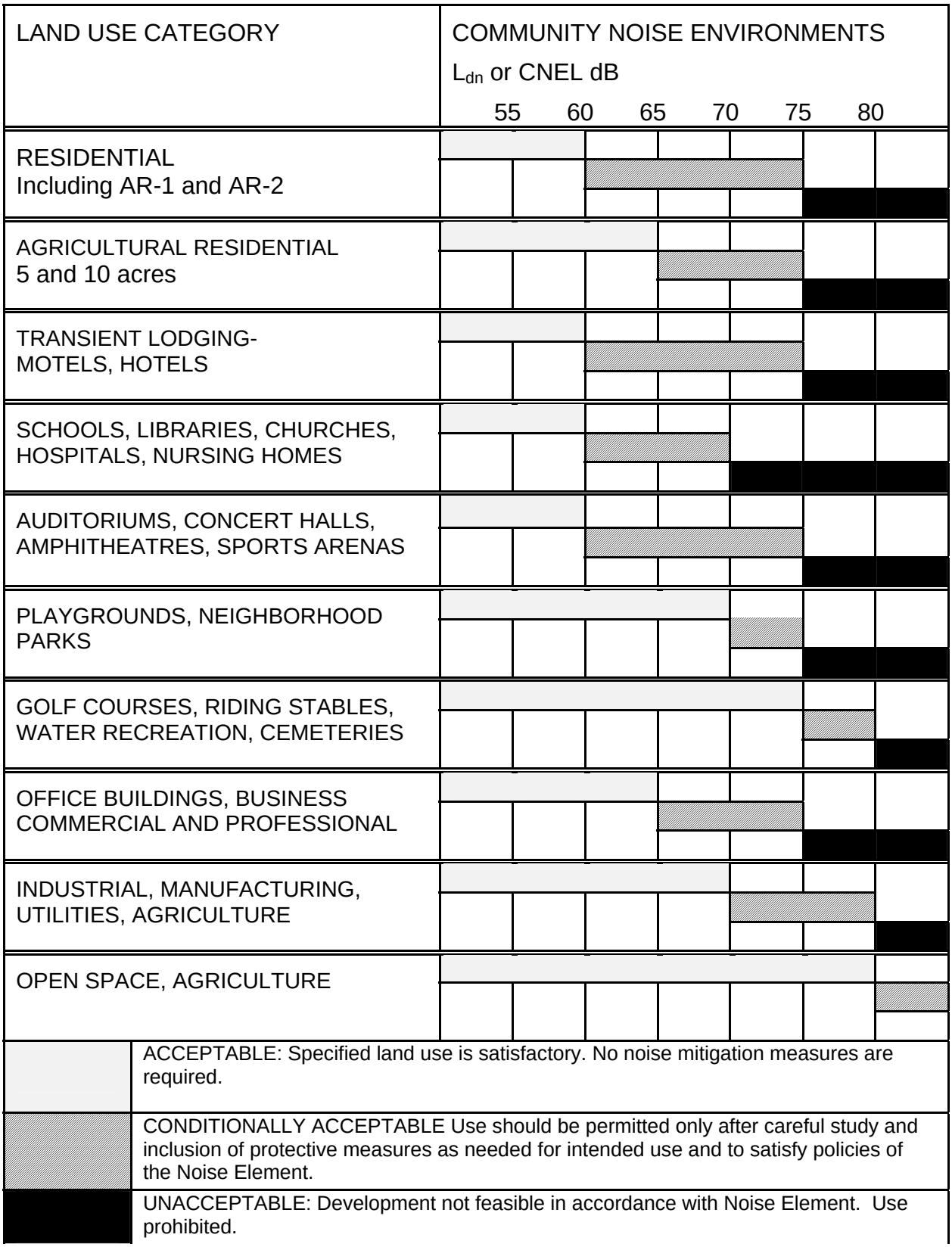
Table NS-3: Noise Level Performance Standards For Residential Areas Affected by Non-Transportation Noise (Table II-1 from the Noise Element)

	Exterior Noise Level Standards (dBA)	
Statistical Noise Level Descriptor	**Daytime 7 a.m. to 10 p.m.**	**Nighttime 10 p.m. to 7 a.m.**
L_{50}	50	45
L_{max}	70	65

LAND USE COMPATIBILITY

The Noise Element contains guidelines that outline different land use categories and varying community noise exposure levels and interprets what noise level is acceptable for each land use category (refer to Table NS-4). For agricultural land uses, a community noise level of 70 dB is acceptable. Conditionally acceptable noise levels for agricultural land uses range between 70 dB and 80 dB. The provisions of the conditionally acceptable category states that use should be permitted only after careful study and inclusion of protective measures as needed for intended use and to satisfy policies of the Noise Element. Noise levels above 80 dB are unacceptable; development is not feasible in accordance with Noise Element and the use is prohibited. For noise-sensitive land uses such as residences, the maximum acceptable noise level is 60 dBA The maximum allowable daytime (7 a.m. to 10 p.m.) noise level is 70 dBA and the maximum allowable nighttime (10 p.m. to 7 a.m.) noise level is 65 dBA for residential areas affected by non-transportation noise.

Table NS-4: Land Use Compatibility for Community Noise Environments



Source: Sacramento County General Plan, Noise Element Figure II-1 (p. 8)

COUNTY NOISE CONTROL ORDINANCE

Sacramento County Noise Control Ordinance, Sacramento County Code Chapter 6.68 sets noise standards for the County in order to prevent excessive, unnecessary or offensive noise that could be detrimental to the public health, safety, welfare and peace and quiet of the inhabitants of the County.

Construction noise is specifically exempt from the exterior noise standards, with the stipulation that construction activities may not take place between 8 p.m. and 6 a.m. on weekdays and between 8 p.m. and 7 a.m. on weekends.

NON-REGULATORY SETTING

SUBJECTIVE REACTIONS TO CHANGES IN NOISE LEVELS

An increase in noise levels above existing noise levels could result in a significant impact, especially if the predicted noise level exceeds County criteria. Research into the human perception of changes in sound level has indicated the following:

- A 3 dB change is barely perceptible,
- A 5 dB change is clearly perceptible, and
- A 10 dB change is perceived as being twice or half as loud.

Additionally, the Federal Interagency Committee on Noise (FICON) has provided guidance on the assessment of changes in ambient noise levels resulting from aircraft operations, found in Table NS-5 below. This information could be extended outside the use of aircraft operations and applied to all sources of cumulative noise.

Table NS-5: Significance of Changes in Cumulative Noise Exposure

Ambient Noise Level Without Project, L_{dn}	Significant Impact
<60 dB	+5.0 dB or more
60-65 dB	+3.0 dB or more
>65 dB	+1.5 dB or more

Source: Federal Interagency Committee on Noise (FICON)

SIGNIFICANCE CRITERIA

The project would be considered to have a significant noise impact if it would:

- Expose persons to or generate noise levels in excess of standards established in the General Plan, Noise Ordinance or applicable standards of other federal or state agencies.
- Cause a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
- Cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

TWIN CITIES ROAD WEST (TCRW) SITE

The Twin Cities Road West site is approximately 80 acres in size, located northwest of the Interstate 5 (I-5) and Twin Cities Road interchange. The proposed footprint of the site would have product storage at the easternmost portion of the property. From here, southbound I-5 is just over 1,000 feet to the east. The proposed feedstock preparation area is west of the product storage area. There is a creek onsite that separates the feedstock preparation area from the composting area. The composting area is proposed along the western portion of the site. The nearest residence is on a parcel west of the TCRW site where general agricultural activities occur. This residential dwelling is approximately 1,000 feet west of the proposed composting area and 2,000 feet west of I-5.

EXISTING NOISE LEVELS

The proposed site is surrounded by agricultural lands to the north, south and west. I-5 is located just over 1,000 feet to the east. Average daily traffic counts along this section of I-5 were gleaned from the State of California, Department of Transportation (Caltrans) website. Counts at Twin Cities Road and I-5 were 59,000 average daily trips. The speed limit is posted at 70 miles per hour with 80% daytime traffic and 20% nighttime traffic. Two percent of the traffic volume was used for both heavy trucks and medium trucks. The FHWA Traffic Noise Prediction Model (FHWA-RD-77-108) was used to determine the amount of traffic noise from I-5 currently experienced on the project site. The project site currently experiences 61 dB L_{dn} from traffic along I-5. These are acceptable noise levels for the composting facility.

In addition to traffic noise created by I-5, traffic noise along Twin Cities Road was estimated. There is an average of 4,340 average daily trips along this western section of Twin Cities Road. Assuming a vehicle speed of 45 miles per hour, 80% daytime traffic, 20% nighttime traffic and two percent of the traffic volume used for both heavy

trucks and medium trucks, the project site is subject to 62 dB L_{dn}. These are acceptable noise levels for the composting facility.

FUTURE NOISE LEVELS

The proposed project has the potential to create noise impacts as a result of increases in automobile, light-duty truck and heavy-duty truck traffic from operation activities. Residents along Twin Cities Road could be impacted by the increase in traffic noise created by the addition of 182 additional daily vehicle trips associated with operation of the Twin Cities Road West facility. The traffic study undertaken for the current project did not anticipate traffic using Twin Cities Road west of the Twin Cities Road West alternative site, but the FHWA computer model was run to estimate the potential increase in traffic-generated noise if all of the 182 trips traveled to the west where residences are located. There was no increase in noise levels at the residential uses west of the TCRW site from the potential increase in traffic experienced along Twin Cities Road west of the facility. Noise impacts from the increase in traffic are considered **less than significant**. The models are not included in the text of this EIR but can be viewed at the Department of Environmental Review and Assessment, 827 7th Street, Room 220, Sacramento, CA 95814.

Subsequent to construction of the project site, on-site operations have the potential to create noise impacts. Since this is a rural area, the presumption of an increase in the ambient noise level may be of concern to the nearby residents. Mitigation is recommended below for the use of adequate mufflers and engine enclosures which would minimize this potential perceived increase in noise levels. Noise impacts from the operation of the composting facility are considered **less than significant.**

NOISE MITIGATION FOR THE TCRW SITE

NO-1 All power equipment used for unloading, separation, loading and transport of recyclable materials shall be equipped with adequate mufflers and engine enclosures as originally provided by the manufacturer or as required by the California Vehicle code. Off-road equipment mufflers shall be fitted to all loaders and other equipment used on the project site.

TWIN CITIES ROAD EAST (TCRE) SITE

The Twin Cities Road East site is approximately 276 acres in total, and is located east of Interstate 5 (I-5), north of Twin Cities Road. The proposed site is adjacent to northbound I-5. The footprint of the site allows for the facility to be located in the center of the property. The composting component of the facility will be approximately 1,000 feet east of northbound I-5. The proposed access road to the facility is from Twin Cities Road, and will be approximately 800 feet long. The administration, scalehouse, and main entrance is proposed 800 feet north of Twin Cities Road, allowing for a buffer

between the proposed facility, nearby residences and surrounding businesses. John Taylor Fertilizers Company, an agricultural business, is adjacent to and south of the site. The proposed facility would be approximately 1,000 feet north of the John Taylor Fertilizer Company. Approximately 1,500 feet south of the proposed facility, are residential dwelling units incidental to agriculture. Adjacent to and southeast of the project site are more residential dwellings. These dwellings would be approximately 1,300 feet away from the proposed facility.

EXISTING NOISE LEVELS

The proposed TCRE alternative site is surrounded by agricultural lands to the north, south and east. I-5 is located 1,000 feet to the west. Average daily traffic counts along this section of I-5 were gleaned from the State of California, Department of Transportation (Caltrans) web-site. Currently at the Twin Cities Road overpass of I-5 there is an estimated 116,000 average daily trips. The speed limit is posted at 70 miles per hour with 80% daytime traffic and 20% nighttime traffic. Two percent of the traffic volume was used for both heavy trucks and medium trucks. The FHWA Traffic Noise Prediction Model (FHWA-RD-77-108) was used to determine the amount of traffic noise from I-5 currently experienced on the project site and at the residences in the vicinity. The project site currently experiences 61 dB L_{dn} and the nearest residence (between the TCRE site and I-5) experiences 63 dB $L_{dn.}$ These are acceptable exterior noise levels for the composting facility.

In addition to traffic noise created by I-5, traffic noise along Twin Cities Road was estimated. There is an average of 5,568 average daily trips along this eastern section of Twin Cities Road. Assuming a vehicle speed of 45 miles per hour, 80% daytime traffic, 20% nighttime traffic and two percent of the traffic volume used for both heavy trucks and medium trucks, the project site is subject to 48 dB L_{dn} and the single family residence between I-5 and the TCRE alternative site is subject to 66 dB L_{dn} 50 feet from the centerline of the roadway. The traffic noise level on the project site created by traffic along Twin Cities Road is acceptable, but the traffic noise level at the residence is conditionally acceptable. The traffic noise level at the residence is an existing condition.

FUTURE NOISE LEVELS

The proposed project has the potential to create noise impacts as a result of increased in automobile, light-duty truck and heavy-duty truck traffic from operation activities. Residents along Twin Cities Road could be impacted by the increase in traffic noise created by the addition of 182 additional daily vehicle trips associated with operation of the Twin Cities East facility. The FHWA computer model was run with two scenarios for the TCRE site: an additional 182 trips traveling to the site from I-5 and an additional 182 trips traveling to the site from the east (State Highway 99 area). The traffic study undertaken for the current project did not anticipate traffic using Twin Cities Road east of the Twin Cities Road East alternative site, but for a worse case scenario, this route was added to the modeling. There was no increase in traffic noise levels from operation-related traffic at the residences located west or east of this alternative site and

no increase in noise exposure at the TCRE site. Noise impacts from the increase in traffic are considered **less than significant.** The models are not included in the text of this EIR but can be viewed at the Department of Environmental Review and Assessment, 827 7th Street, Room 220, Sacramento, CA 95814.

Subsequent to construction of the project site, on-site operations and the use of on-site heavy equipment have the potential to create noise impacts. Since this is a rural area, the presumption of an increase in the ambient noise level may be of concern to the nearby residents. While there is adequate buffering land between the site and surrounding sensitive receivers to reduce this impact to an acceptable level that is consistent with General Plan policy, mitigation is recommended below for the use of adequate mufflers and engine enclosures that would further reduce noise and reduce a perceived increase in the ambient noise level. Noise impacts created by operations at the TCRE site are considered **less than significant**. Mitigation is recommended below for the use of adequate mufflers and engine enclosures which would minimize perceived increases in noise levels.

MITIGATION MEASURE FOR THE TCRE SITE

Implement Mitigation Measure NO-1.

SCOTT ROAD SITE

The Scott Road site is 134 acres in size and is located on the west side of Scott Road south of White Rock Road. There are no sensitive receivers located in the vicinity of the project site. Prairie City State Vehicular Recreation Area is located to the northwest of the site; however noise created by operation of the compost facility is anticipated to be masked by the noise created at the off-road vehicles and loud speakers at the recreation area. The Scott Road alternative is expected to add an additional 218 vehicle trips per day to the roadway system in the vicinity. The FHWA Traffic Noise Prediction Model (FHWA-RD-77-108) was used to determine the amount of increase in traffic noise that would be generated by an additional 218 trips per day. The projection was that there would be no change in traffic-related noise. Since there are no sensitive receivers near the Scott Road site, there will be no further noise discussion of the site. Noise impacts associated with the Scott Road site are considered **less than significant**. No mitigation is required. The models are not included in the text of this EIR but can be viewed at the Department of Environmental Review and Assessment, 827 7th Street, Room 220, Sacramento, CA 95814.

KIEFER ROAD LANDFILL SITE

The Kiefer Road Landfill site is located at the Kiefer Landfill, east of current landfill operations. The proposed site location is located at Modules M-8 and M-9. The composting component of the project will be within Module M-9 and the product storage and feedstock preparation areas will be located within Module M-8. The site is surrounded by the landfill to the west and agricultural/grazing lands to the north, south and east. Kiefer Landfill operations currently produce noise levels in the form of traffic noise along Kiefer Road and Grant Line Road and on-site noise created by heavy equipment associated with the operation of the landfill. This is an existing condition. The project site would be accessed from Kiefer Road which has a daily traffic volume of 4,138 trips. Kiefer Landfill site will add an additional 186 daily trips to the local roadway network. There are no sensitive receivers in the vicinity of the Kiefer site. The FHWA Traffic Noise Prediction Model (FHWA-RD-77-108) was used to determine the amount of increase in traffic noise that would be generated by an additional 186 trips per day. The projection was that there would be no change in traffic-related noise on the local roadways. Since there are no sensitive receivers near the Kiefer Landfill site, there will be no further noise discussion of the site. Noise impacts associated with the Kiefer Road site are considered **less than significant**. No mitigation is required. The models are not included in the text of this EIR but can be viewed at the Department of Environmental Review and Assessment, 827 7th Street, Room 220, Sacramento, CA 95814.