

## 27. Noise

### 27.1 Introduction

This chapter describes the noise setting for the Extended, Secondary, and Primary study areas. Descriptions and maps of these three study areas are provided in Chapter 1 Introduction.

The regulatory setting for noise is discussed briefly in this chapter, and is presented in greater detail in Chapter 4 Environmental Compliance and Permit Summary.

This chapter focuses primarily on the Primary Study Area. Potential impacts in the Secondary and Extended study areas were evaluated and discussed qualitatively. Potential local and regional impacts from constructing, operating, and maintaining the alternatives were described and compared to applicable significance thresholds. Effects of Project noise on wildlife are discussed in Chapter 14 Terrestrial Biological Resources, and the effects of groundborne vibration on fish are discussed in Chapter 12 Aquatic Biological Resources. Mitigation measures are provided for identified significant impacts, where appropriate.

### 27.2 Affected Environment

#### 27.2.1 Introduction

Noise is defined as unwanted sound. Levels of sound are measured and expressed in decibels (dB). Airborne sound is a rapid fluctuation of air pressure above and below atmospheric pressure. Methods used to measure or quantify sound levels depend on the source, the receiver, and the reason for measurement.

The most common metric is the overall A-weighted sound level measurement, which measures sound in a manner similar to the way a person perceives or hears sound, thus achieving a strong correlation for evaluating acceptable and unacceptable sound levels. A-weighted measurement has been adopted by regulatory agencies worldwide. These sound levels are expressed as dBA.

A-weighted sound levels are typically measured or presented as  $L_{eq}$ , which is defined as the average sound level on an equal energy basis for a stated period of time. The  $L_{eq}$  is commonly used to measure steady state sound or noise that is usually dominant. The relative A-weighted noise levels of common sounds measured in the environment and industry for various qualitative sound levels are provided in Table 27-1.

**Table 27-1  
Typical Sound Levels Measured in the Environment and Industry**

Noise Source at a Given Distance	A-Weighted Sound Level in Decibels (dBA)	Qualitative Description
Carrier Deck Jet Operation	140	
	130	Pain threshold
Jet Takeoff (200 feet)	120	
Auto Horn (3 feet)	110	Maximum vocal effort
Jet Takeoff (1,000 feet) Shout (0.5 feet)	100	

PRELIMINARY – SUBJECT TO CHANGE

**Table 27-1  
Typical Sound Levels Measured in the Environment and Industry**

Noise Source at a Given Distance	A-Weighted Sound Level in Decibels (dBA)	Qualitative Description
New York Subway Station Heavy Truck (50 feet)	90	Very annoying Hearing damage (8-hour, continuous exposure)
Pneumatic Drill (50 feet)	80	Annoying
Freight Train (50 feet) Freeway Traffic (50 feet)	70 to 80	
	70	Intrusive (Telephone use difficult)
Air Conditioning Unit (20 feet)	60	
Light Auto Traffic (50 feet)	50	Quiet
Living Room, Bedroom	40	
Library, Soft Whisper (5 feet)	30	Very quiet
Broadcasting/Recording Studio	20	
	10	Just audible

Source: New York Department of Environmental Conservation. 2001.

Statistical methods are used to capture the dynamics of a changing acoustical environment. These measurements are typically denoted by  $L_{xx}$ , where  $xx$  represents the percent of time a sound level is exceeded. The  $L_{90}$  represents the noise level that is exceeded during 90 percent of the measurement period. Similarly, the  $L_{10}$  represents the noise level exceeded for 10 percent of the measurement period. Another sound level expression is  $L_{max}$ , which is the maximum sound pressure level over a defined period.

Another metric used in determining the effect of environmental noise is the difference in response that people have to daytime and nighttime noise levels. During the evening and at night, exterior background noises are generally lower than daytime levels. However, most household noise also decreases at night and exterior noise becomes more noticeable. Furthermore, most people sleep at night and are more sensitive to intrusive noises at that time. To account for human sensitivity to evening and nighttime noise levels, the Daytime-Nighttime Noise Level (DNL) (also abbreviated as  $L_{dn}$ ) and the Community Noise Equivalent Level (CNEL) for California were developed. The DNL is a noise metric that accounts for the greater annoyance of noise during the nighttime hours (10:00 p.m. to 7:00 a.m.). The CNEL is a noise index that accounts for the greater annoyance of noise during the evening hours (7:00 p.m. to 10:00 p.m.) and nighttime hours.

DNL values are calculated by averaging hourly  $L_{eq}$  sound levels for a 24-hour period and applying a weighting factor to the nighttime  $L_{eq}$  values. CNEL values are calculated similarly, except that a weighting factor is also added to evening  $L_{eq}$  values. The weighting factors, which reflect the increased sensitivity to noise during evening and nighttime hours, are added to each hourly  $L_{eq}$  sound level before the 24-hour DNL or CNEL is calculated. For the purposes of assessing noise, the 24-hour day is divided into three time periods, with the following weightings:

- Daytime hours: 7:00 a.m. to 7:00 p.m. (12 hours) – Weighting factor of 0 dBA
- Evening hours (for CNEL only) 7:00 p.m. to 10:00 p.m. (3 hours) – Weighting factor of 5 dBA
- Nighttime hours (for both CNEL and DNL) 10:00 p.m. to 7:00 a.m. (9 hours) – Weighting factor of 10 dBA

The adjusted time period noise levels are then averaged (on an energy basis) to compute the overall DNL or CNEL value. For a continuous noise source, the DNL value is easily computed by adding 6.4 dBA to the overall 24-hour noise level ( $L_{eq}$ ). For example, if the expected continuous noise level from a noise source is 60.0 dBA, the resulting DNL from the source would be 66.4 dBA. Similarly, the CNEL for a continuous noise source is computed by adding 6.7 dBA to the overall 24-hour  $L_{eq}$ . Given the small differences, the two are often used interchangeably.

The effects of noise on people can be listed in three general categories:

- Subjective effects of annoyance, nuisance, dissatisfaction
- Interference with activities, such as speech, sleep, learning
- Physiological effects, such as startling and hearing loss

In most cases, environmental noise effects are limited to the first two categories - creating an annoyance or interference with activities. No completely satisfactory way exists to measure the subjective effects of noise or to measure the corresponding reactions of annoyance and dissatisfaction. This lack of a common standard is primarily due to the wide variation in individual thresholds of annoyance and habituation to noise. Therefore, an important way of determining a person's subjective reaction to a new noise is to compare it to the existing or "ambient" environment to which that person has adapted. In general, the more the level or the tonal (frequency) variations of a noise exceed the previously existing ambient noise level or tonal quality, the less acceptable the new noise is, as perceived by the exposed individual.

The general human response to changes in noise levels that are similar in frequency content (for example, comparing increases in continuous [ $L_{eq}$ ] traffic noise levels) are summarized as follows:

- A 3 dB change in sound level is considered a barely noticeable difference
- A 5 dB change in sound level is typically noticeable
- A 10 dB change is considered to be a doubling in loudness

### **27.2.2 Extended Study Area**

The Extended Study Area consists of the Central Valley Project and the State Water Project service areas located in northern and southern California. Noise levels in these areas can vary considerably, depending on the location, season, and time of day. Noise levels in noisy urban settings can be as high as 75 dBA during the day. In extremely isolated outdoor locations with no wind, wildlife, or running water, noise levels may be less than 20 dBA. Typical noise levels in rural settings are approximately 40 dBA during the day and 30 dBA during the night. In wilderness areas, ambient noise levels are on the order of 20 dBA (USEPA, 1971). In rural areas with low population density, the  $LD_n$  likely varies between 35 to 40 dBA (Miller, 2002). Noise levels in recreational settings, such as San Luis Reservoir, can range from 55 to 65 dBA during the day, dropping to 50 to 60 dBA at night (Miller, 2002).

Noise-sensitive land uses generally are defined as locations where people reside or where the presence of unwanted sound could adversely affect the designated use of the land. Noise-sensitive land uses located in the Extended Study Area include residences, hospitals, places of worship, libraries, and schools, as well as nature and wildlife preserves and parks.

### **27.2.3 Secondary Study Area**

The Secondary Study Area consists of existing facilities in 22 counties in northern California that may be affected by Project operation. Descriptions of the ambient noise levels in these counties are provided

below; however, because noise is a local phenomenon that is influenced by discrete activities, noise levels at the existing facilities not proposed for modification are not discussed in this section. Similar to the Extended Study Area, noise-sensitive land uses located in the Secondary Study Area include residences, hospitals, places of worship, libraries, and schools, as well as nature and wildlife preserves and parks.

### **27.2.3.1 Alameda**

Transportation noise in Alameda County includes vehicle, aircraft, and train traffic. Major roadways in the County include Interstates 80, 580, 680, 880, and 980, and numerous State Routes. Railroad activity occurs along two railroad lines of the Union Pacific Railroad and also along the Bay Area Rapid Transit (BART) system. There are three public airports within Alameda County: Oakland International Airport, Hayward Executive Airport, and Livermore Municipal Airport. Other sources of noise in the county include stationary noise sources associated with industrial and commercial uses (Alameda County, 1985; Alameda County, 2000; Alameda County, 2009).

### **27.2.3.2 Butte**

Transportation noise in Butte County includes vehicle, aircraft, and train traffic. Major roadways in the county include State Routes 32, 70, 99, 149, 162, and 191. Railroad activity occurs along two railroad lines of the Union Pacific Railroad. One line is aligned parallel to the west side of State Route 99. The other line is generally parallel to the east and west sides of the Feather River. There are four public airports within Butte County: Chico Municipal, Oroville Municipal, Paradise Skypark, and Ranchero.

Non-transportation noise sources in the county include noise from commercial, industrial, and public facilities. Significant stationary noise sources in unincorporated Butte County are the Neal Road Recycling and Waste Facility, solid waste transfer stations, aggregate mining operations, general service commercial and light industrial uses, recreational uses, and parks and school playing fields (Butte County, 2009). Noise levels in recreational settings, such as Lake Oroville and the Thermalito Complex, can range from 55 to 65 dBA during the day, dropping to 50 to 60 dBA at night (Miller, 2002).

### **27.2.3.3 Colusa**

Ambient noise levels in portions of Colusa County are defined primarily by traffic on major roadways, including, but not limited to, Interstate 5 and State Routes 16 and 20. Agricultural activities, as well as aircraft from the Colusa County Airport, also contribute to the noise environment. In addition, there are numerous stationary noise sources (e.g., quarry operations, lumber mills, industrial facilities) dispersed throughout the county (Colusa County, 2012).

### **27.2.3.4 Contra Costa**

The primary source of noise in Contra Costa County is from transportation, which includes vehicle, aircraft and train traffic. Vehicular traffic along freeways (e.g., Interstates 80 and 680 and State Routes 24 and 4), and major arterials (e.g., Willow Pass Road and Ygnacio Valley Road) are the primary sources of vehicular traffic noise. Rail operations produce noise along the Atchison Topeka and Santa Fe and Southern Pacific railroad corridors. Passbys from the Bay Area Rapid Transit system also contribute to noise from train traffic. Aircraft from Buchanan Field, near Concord, is the primary source of aircraft noise. Other sources of aircraft noise are local airports and military helicopter activity. Motorized boats along the San Joaquin River also contribute noise.

Non-transportation noise sources in the county include agricultural operations, commercial and industrial activities, parks and school playing fields, heating and cooling equipment, landscape maintenance, and heavy equipment use. Industrial plants, such as oil refineries and materials processing plants, contribute noise as do operations at the Camp Parks Reserve Forces Training Area (Contra Costa County, 2005).

### **27.2.3.5 Del Norte**

Ambient noise levels in portions of Del Norte County are defined primarily by traffic on major roadways, including, but not limited to, Interstates 101 and 199. Aircraft from the Jack McNamara Field contribute to the noise environment. There are also numerous stationary noise sources dispersed throughout the county (Del Norte County, 2003).

### **27.2.3.6 El Dorado**

Ambient noise levels in portions of El Dorado County are defined primarily by traffic on major roadways, including, but not limited, to U.S. 50 and State Routes 49, 193, and 89. Aircraft from the Cameron Airpark Airport, Placerville Airport, Georgetown Airport, Lake Tahoe Airport, and Sacramento Mather Airport contribute to the noise environment. There are also numerous stationary noise sources (e.g., quarry operations, lumber mills, industrial facilities) dispersed throughout the county (El Dorado County, 2003). Noise levels in recreational settings, such as Folsom Lake, can range from 55 to 65 dBA during the day, dropping to 50 to 60 dBA at night (Miller, 2002).

### **27.2.3.7 Glenn**

Ambient noise levels in portions of Glenn County are defined primarily by traffic on major roadways, including, but not limited to, Interstate 5 and State Route 162. Aircraft from the Willow-Glenn County Airport also contribute to the noise environment. In addition, there are numerous stationary noise sources throughout the county (Glenn County, 1993).

### **27.2.3.8 Humboldt**

Ambient noise levels in portions of Humboldt County are defined primarily by traffic on major roadways, including, but not limited to, U.S. 101, and State Routes 36, 255, and 299. Train traffic from the Northwestern Pacific Railroad and aircraft from the Rohnerville, Dinsmore, Murray Field, and City of Eureka airports also contribute to the noise environment. In addition, there are numerous stationary noise sources throughout the county (Humboldt County, 2008).

### **27.2.3.9 Marin**

Vehicle traffic is the primary source of noise in Marin County, with the highest noise levels occurring along major highways (U.S. 101 and State Routes 1 and 37) and major county roads (including Sir Francis Drake Boulevard, Petaluma Point Reyes Road, Lucas Valley Road, and Novato Boulevard). Other significant local noise sources include aircraft from Rafael Airport, Gness Field, and the Richardson Bay Helipad, trains, mining activity, and construction (Marin County, 2007).

### **27.2.3.10 Placer**

Ambient noise levels in portions of Placer County are defined primarily by traffic on major roadways, including, but not limited to, Interstate 80 and State Routes 20, 28, 49, 65, 89, and 193. Aircraft from the Lincoln Regional Airport, Auburn Airport, and Truckee-Tahoe Airport also contribute to the noise environment. In addition, there are numerous stationary noise sources throughout the county. Noise levels

in recreational settings such as Folsom Lake can range from 55 to 65 dBA during the day, dropping to 50 to 60 dBA at night (Miller, 2002).

### **27.2.3.11 Sacramento**

The primary source of noise in Sacramento County is from transportation, which includes vehicle, aircraft, and train traffic. There are five freeways in the county (Interstates 5 and 80, State Routes 99 and 160, and U.S. 50) that all converge near downtown Sacramento, seven public airports, and multiple heavy and light rail lines. There are also numerous arterial roadways and highways that have two to eight lanes that generate noise. Motorized boats along the Sacramento River also contribute noise.

Non-transportation noise sources in the county include agricultural operations, commercial and industrial activities, parks and school playing fields, heating and cooling equipment, landscape maintenance, heavy equipment use, and outdoor sporting event facilities (Sacramento County, 2010). Noise levels in recreational settings such as Folsom Lake can range from 55 to 65 dBA during the day, dropping to 50 to 60 dBA at night (Miller, 2002).

### **27.2.3.12 San Francisco**

Noise sources in San Francisco County include personal and public transportation vehicles (including rail, bus, and cable car), aircraft from the San Francisco International Airport, commercial and industrial activities, construction, heating and cooling equipment, landscape maintenance, heavy equipment use, and outdoor events (City and County of San Francisco, 1996).

### **27.2.3.13 San Mateo**

Transportation noise in San Mateo includes vehicle and aircraft traffic. Major roadways in the county include U.S. 101, Interstates 280 and 380, and State Routes 1, 82, 84 and 92. Aircraft from the San Francisco International Airport and two general aviation airports (Half Moon Bay and San Carlos) contribute to the noise environment.

Non-transportation noise sources in the county include agricultural operations, commercial and industrial activities, parks and school playing fields, heating and cooling equipment, landscape maintenance, heavy equipment use, and outdoor sporting event facilities (San Mateo County, 1986).

### **27.2.3.14 Santa Clara**

Transportation noise in Santa Clara County includes vehicle and aircraft traffic. Major roadways in the county include U.S. 101, Interstate 880, and several State Routes. Aircraft from the San Jose International Airport, Moffett Field, and three general aviation airports also contribute to the noise environment.

Non-transportation noise sources in the county include agricultural operations, commercial and industrial activities, parks and school playing fields, heating and cooling equipment, landscape maintenance, heavy equipment use, and outdoor sporting event facilities (Santa Clara County, 1994).

### **27.2.3.15 Shasta**

Transportation noise in Shasta County includes vehicle, aircraft, and train traffic. Major roadways in the county include State Routes 44, 89, 273 and 299, and Interstate 5. The principal railroad activity in the county occurs along the Union Pacific Railroad main line track that is aligned north/south. In addition to

vehicle and train traffic, aircraft from the Redding Municipal Airport, Shingletown Airport, and Fall River Mills Airport contribute to the noise environment.

Non-transportation noise sources in the county include agricultural operations, commercial and industrial activities, parks and school playing fields, heating and cooling equipment, landscape maintenance, heavy equipment use, and outdoor sporting event facilities (Shasta County, 2004). Noise levels in recreational settings, such as Shasta and Whiskeytown lakes, can range from 55 to 65 dBA during the day, dropping to 50 to 60 dBA at night (Miller, 2002).

### **27.2.3.1 Solano**

Bisecting the county from north to south, Interstate 80 is the dominant noise source in Solano County, with State Routes 12 and 113 also contributing transportation noise. In addition to freeway noise, the county's ambient noise levels include local traffic on city streets, commercial and industrial uses, active recreation areas of parks and outdoor play areas, railroad operations, and aircraft overflights. Motorized boats along the Sacramento River also contribute noise (Solano County, 2008).

### **27.2.3.2 Sonoma**

Transportation noise in Sonoma County includes vehicle, aircraft, and train traffic. Major roadways in the county include State Routes 1, 12, 116, 121, and 128, U.S. 101, and county roads. The principal railroad activity occurs along the Northwest Pacific Railroad. It parallels U.S. 101 the entire length of the county. In addition to vehicle and train traffic, aircraft from the Charles M. Schulz Airport contribute to the noise environment.

Non-transportation noise sources in the county include agriculture (primarily wineries and cattle ranching), industrial and heavy commercial activities, the Infineon International Raceway, geothermal power plants at the Geysers, solid waste landfills and transfer stations, concerts, and other outdoor events (Sonoma County, 2008).

### **27.2.3.3 Sutter**

The dominant sources of noise in Sutter County are related to transportation and include automobile and truck traffic, aircraft, and trains. State Routes 20, 70, 99 and 113 are major sources of traffic noise. Sutter County Airport is the only publicly owned and operated airport in the county. Noise from aircraft traffic at Sacramento International Airport, located approximately one mile south of the southern Sutter County's border, also influences Sutter County's noise environment. In addition, two rail lines are active in the county: the Southern Pacific Transportation Company and Union Pacific Railroad.

Stationary sources of noise in the county include natural gas extraction facilities, construction sites, mining activities, agricultural activities, and commercial and industrial facilities (Sutter County, 1996).

### **27.2.3.4 Tehama**

The major noise sources in Tehama County consist of highway and local traffic on county roads, as well as commercial and industrial uses, airports, and railroad operations. Major roadways in the county include Interstate 5 and State Routes 32, 36, 89, and 99. The only active railroad operation within Tehama County is the Union Pacific Railroad. There are two public airports within Tehama County: Corning Municipal Airport and Red Bluff Municipal Airport (Tehama County, 2009). Existing sources of noise at/near the location of the existing Red Bluff Pumping Plant include roadway traffic and stationary noise sources,

such as mechanical equipment at the Red Bluff Pumping Plant, the existing Red Bluff Diversion Dam, and the T-C Canal Intake, as well as noise from activities on the Sacramento River.

### **27.2.3.5 Trinity**

Transportation noise in Trinity County includes vehicle, aircraft, and train traffic. Major roadways in the county include State Routes 3, 36, and 299, and county roads. The principal railroad activity in the county occurs along the Northwest Pacific Railroad. It parallels Highway 101 the entire length of the county. Aircraft from the Weaverville, Ruth, Hyampom, Hayfork and Trinity Center airports contribute to the noise environment.

Noise levels in recreational settings, such as Trinity and Lewiston lakes, can range from 55 to 65 dBA during the day, dropping to 50 to 60 dBA at night (Miller, 2002). Non-transportation noise sources in the county include stationary sources, such as the Weaverville landfill/transfer station, the Trinity River lumber mill, concrete/aggregate plants, and other industrial facilities (Trinity County, 2003).

### **27.2.3.6 Yolo**

Noise sources in eastern Yolo County and West Sacramento include transportation and non-transportation activities. Traffic noise occurs along the corridors of Interstates 5 and 80, and State Route 84. Rail operations from freight and passenger traffic, and aircraft from the Sacramento International Airport and Bourges-Clarksburg Airport, contribute to the noise environment. Motorized boats along the Sacramento River also contribute noise. Non-transportation noise sources in the county include agricultural operations, commercial and industrial activities, parks and school playing fields, heating and cooling equipment, landscape maintenance, and heavy equipment use (Yolo County, 2009).

### **27.2.3.7 Yuba**

The dominant sources of noise in Yuba County are from transportation, which includes vehicle, train, and aircraft traffic. Major roadways in the county include State Routes 20, 65 and 70. Two major railroad lines, Southern Pacific and Union Pacific, contribute rail traffic noise. Aircraft from the Yuba County Airport and Beale Air Force Base contribute to the noise environment.

Non-transportation noise sources in the county include agricultural operations, commercial and industrial activities, parks and school playing fields, heating and cooling equipment, landscape maintenance, natural gas compression stations, and heavy equipment use (Yuba County, 1996).

## **27.2.4 Primary Study Area**

Existing noise levels are described at each of the proposed Project facility locations. Ambient noise levels are estimated based on existing land uses. Noise-sensitive land uses are described by Project feature. Noise-sensitive land uses include residences, hospitals, places of worship, libraries, and schools, as well as nature and wildlife preserves and parks.

### **27.2.4.1 Sites Reservoir Inundation Area and Sites Reservoir Dams, Sites Pumping/Generating Plant, Sites Electrical Switchyard, Tunnel from Sites Pumping/Generating Plant to Sites Reservoir Inlet/Outlet Structure, Field Office Maintenance Yard, Recreation Areas, and Road Relocations and South Bridge**

The majority of the footprint of the proposed Sites Reservoir, its proposed dams, pumping/generating plant, tunnel to the inlet/outlet structure, the inlet/outlet structure, electrical switchyard, field office

maintenance yard, recreation areas, bridge, and roads would be located within Colusa County in what is currently a rural and sparsely populated area. Within the vicinity of these Project features, there are several residences and one paved road (Maxwell Sites Road, which, as it continues west, becomes Sites Lodoga Road). Ambient noise levels in this area are expected to be low due to the few roads and the sparse population. The primary noise source is traffic noise and noise associated with ranching operations.

The northernmost portion of the proposed Sites Reservoir would be located within Glenn County. No developed road access exists in this area. Road 69 dead-ends three miles west of the existing T-C Canal, which is located to the east of the proposed reservoir site. Noise sources along/near Road 69 include a few rural residences and agricultural operations. Ambient noise levels in this area are expected to be low due to the general lack of roads and residences in the area, and the limited accessibility of the area.

#### **27.2.4.2 Holthouse Reservoir Complex and Holthouse Reservoir Electrical Switchyard**

The existing Funks Reservoir is located within Colusa County. There is no public access to the reservoir; the T-C Canal levee road that provides access to the reservoir has locked gates to provide access to only authorized personnel. Similar to Sites Reservoir, Funks Reservoir is located in an area that is expected to have low ambient noise levels. No noise-sensitive receptors are located within a one-mile buffer around the proposed Funks Reservoir Dredging area. Primary noise sources at the reservoir include wildlife that visit the site, as well as human and vehicle noise when the reservoir is visited by authorized personnel.

The Holthouse Reservoir Complex and Holthouse Reservoir Electrical Switchyard are proposed to be located adjacent to and on the east side of the existing Funks Reservoir. The area is currently undeveloped open space that is not accessible to the public. This area is expected to have low ambient noise levels. No noise-sensitive receptors are located within a one-mile buffer around the Hothouse Reservoir Complex and Holthouse Reservoir Electrical Switchyard. Primary noise sources in this area include wildlife that visit the site, agricultural operations, and human and vehicle noise from authorized personnel using the portion of the T-C Canal levee road that is nearby.

#### **27.2.4.3 Terminal Regulating Reservoir (includes the Terminal Regulating Reservoir to Funks Creek Pipeline and Outlet), Glenn-Colusa Irrigation District Canal Connection to the Terminal Regulating Reservoir, Terminal Regulating Reservoir Pumping/Generating Plant, Terminal Regulating Reservoir Electrical Switchyard, Terminal Regulating Reservoir Pipeline, and Terminal Regulating Reservoir Pipeline Road**

The proposed TRR, its connection to the GCID Canal, the pumping plant and electrical switchyard, two pipelines, and maintenance road would be located within Colusa County. Similar to Sites Reservoir, the TRR and associated facilities would be located in an area that is expected to have low ambient noise levels. There are a few residences within a 0.5-mile radius of the proposed TRR location. The nearest residences are located northeast of and adjacent to the TRR. This area is agricultural, so the primary noise source is agricultural equipment that currently operates at the TRR site and in all directions around the site. Due to the proposed TRR's location near existing local roads (Delevan, Mc Dermott, and Lenahan roads), traffic noise also contributes to the ambient noise setting.

#### **27.2.4.4 Glenn-Colusa Irrigation District Canal Facilities Modifications**

The GCID Canal Facilities Modifications would be located in Glenn County. The proposed headgate and canal lining sites would be located approximately five miles northwest of Hamilton City within the

existing GCID Canal. Existing land uses in the area, in all directions surrounding the GCID Canal facilities, include agriculture (row crops and orchards), a few rural residences, and undeveloped open space. This area is expected to have low ambient noise levels; noise sources include vehicle traffic and equipment associated with farming operations. The nearest residence is located approximately 680 feet west of the proposed headgate structure.

The site of the proposed railroad siphon replacement is at the GCID Canal at the southeast edge of the City of Willows. Existing land uses in the area include residential to the south and west, commercial to the west, light industrial and undeveloped open space to the north, and agricultural to the east. This area is expected to have low ambient noise levels; noise sources include vehicle traffic and equipment associated with farming operations. The nearest residence is located approximately 100 feet southwest of the proposed railroad siphon replacement location.

#### **27.2.4.5 Delevan Pipeline, Delevan Pipeline Electrical Switchyard, and Delevan Transmission Line**

The proposed Delevan Pipeline, Delevan Pipeline Electrical Switchyard, and Delevan Transmission Line would be located within agricultural fields and orchards in Colusa County. Similar to Sites Reservoir, the Delevan Pipeline, Electrical Switchyard, and Transmission line would be located in an area that is expected to have low ambient noise levels. However, intermittent noise sources include crop dusters and/or helicopters, the use of propane cannons to reduce bird depredation, and gun shots during hunting season. There are various residences adjacent to and within a 0.5-mile radius of the proposed Delevan Pipeline and Delevan Transmission Line locations. The nearest residence to the proposed Delevan Pipeline Electrical Switchyard location is approximately 1.7 miles to the east.

#### **27.2.4.6 Delevan Pipeline Intake/Discharge Facilities**

The proposed Delevan Pipeline Intake/Discharge Facilities would be located at the eastern terminus of the proposed Delevan Pipeline at the Sacramento River. The footprint of the intake/discharge facilities proposed for Alternatives A and C is larger than the discharge-only facilities proposed for Alternative B; however, their location is the same. The existing noise sources in this area include agricultural operations associated with the orchards that are located at the site, vehicle traffic noise from SR 45, noise from boat traffic and humans on the Sacramento River, and the noise that is generated from the existing Maxwell Irrigation District pumps that are located adjacent to and north of the proposed intake/discharge facilities location. There are two residences within a one-mile buffer of the proposed Delevan Pipeline Intake/Discharge Facilities.

#### **27.2.4.7 Project Buffer**

The Project Buffer would surround all of the Primary Study Area Project facilities, except for the Delevan Pipeline and Transmission Line, TRR Pipeline and Road, Delevan Pipeline Electrical Switchyard, TRR to Funks Creek Pipeline, and portions of the roads. The existing noise sources and proximity of noise-sensitive receptors within a given area of the Project Buffer would, therefore, be the same as those described for the Project facilities that the Project Buffer surrounds.

## 27.3 Environmental Impact/Environmental Consequences

### 27.3.1 Regulatory Setting

Noise associated with projects are regulated at the federal, State, and local levels. Provided below is a list of the applicable regulations. These policies are discussed in detail in Chapter 4 Environmental Compliance and Permit Summary of this EIR/EIS.

#### 27.3.1.1 Federal Plans, Policies, and Regulations

- Federal guidance for environmental noise and regulations for specific sources (for example, aircraft or federally funded highways) by the Federal Energy Regulatory Commission, Federal Transit Administration (FTA), Federal Railroad Administration, Federal Highway Administration (FHWA), Federal Aviation Administration, U.S. Environmental Protection Agency, and the U.S. Department of Housing and Urban Development

A summary of various federal noise guidelines is presented in Table 27-2. As an example, the Federal Railroad Administration (FRA) and Federal Transit Administration (FTA) guidelines are presented on a sliding scale. Therefore, if the existing noise exposure at a sensitive receptor is 50 dBA, an effect would occur if an increase of 5 dBA is predicted.

**Table 27-2  
Summary of Federal Guidelines/Regulations for Residential Exterior Noise**

Agency	Leq <sup>e</sup> (dBA)	DNL <sup>f</sup> (dBA)
Federal Energy Regulatory Commission	<b>49</b>	55
Federal Highway Administration	67	67
Federal Aviation Administration	<b>59</b>	65
Federal Railroad Administration and Federal Transportation Administration <sup>a,b</sup>	Sliding scale	Sliding scale
U.S. Environmental Protection Agency <sup>c</sup>	<b>49</b>	55
U.S. Department of Housing and Urban Development <sup>d</sup>	<b>59</b>	65

<sup>a</sup>FRA 1998.

<sup>b</sup>FTA 2006.

<sup>c</sup>EPA 1974.

<sup>d</sup>24 CFR Part 51B.

<sup>e</sup>The average sound level on an equal energy basis for a stated period of time. The Leq is commonly used to measure steady state sound or noise that is usually dominant.

<sup>f</sup>The Daytime/Nighttime Noise Level (DNL) was developed to account for human sensitivity to evening and nighttime noise levels. The DNL is a noise metric that accounts for greater annoyance of noise during the nighttime hours (10:00 p.m. to 7:00 a.m.).

Notes:

**Bold** numbers indicate calculated equivalent standard. Because the Federal Highway Administration regulates peak hour noise level, the DNL is assumed equivalent to the peak noise hour.

dBA = decibel A-weighted sound level; the sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network.

#### 27.3.1.2 State Plans, Policies, and Regulations

- California Noise Control Act of 1973 (California Health and Safety Code Sections 46000-46080)
- DWR Specification 05-16 (Section 01570 Environmental Protection)<sup>1</sup>

<sup>1</sup> DWR Specification 05-16, Section 01570 Environmental Protection describes the requirements for conservation and protection of environmental resources at construction work sites, Part 1.07(B)(3) addresses the threshold for establishing noise impacts to wildlife and the recommended mitigation for such potential impacts.

- California Administrative Code Title 4
- California Government Code §65302(f)

### **27.3.1.3 Regional and Local Plans, Policies, and Regulations**

- Tehama County General Plan
- Glenn County General Plan
- Colusa County General Plan

### **27.3.2 Evaluation Criteria and Significance Thresholds**

Significance criteria represent the thresholds that were used to identify whether an impact would be significant. Appendix G of the *CEQA Guidelines* suggests the following evaluation criteria for noise:

*Would the Project:*

- Result in 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?
- Result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?
- Result in a substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project?
- Result in a substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project?
- Expose people residing or working in the Project area to excessive noise levels (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).?
- Expose people residing or working in the Project area to excessive noise levels (for a project within the vicinity of a private airstrip)?

The evaluation criteria used for this impact analysis represent a combination of the Appendix G criteria and professional judgment that considers current regulations, standards, and/or consultation with agencies, knowledge of the area, and the context and intensity of the environmental effects, as required pursuant to NEPA. For the purposes of this analysis, an alternative would result in a significant impact if it would result in any of the following:

- Expose persons to or generation of noise levels in excess of standards established in the local General Plans, or applicable standards of other agencies.
- Expose persons to or generation of excessive groundborne vibration or groundborne noise levels.
- Result in a substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project.
- Result in a substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project.

- Expose people residing or working in the Project area to excessive noise levels (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).
- Expose people residing or working in the Project area to excessive noise levels (for a project within the vicinity of a private airstrip).

### **27.3.3 Impact Assessment Assumptions and Methodology**

#### **27.3.3.1 Assumptions**

The following assumptions were made regarding Project-related construction, operation, and maintenance impacts to noise levels:

- Direct Project-related construction, operation, and maintenance activities would occur in the Primary Study Area.
- Direct Project-related operational effects would occur in the Secondary Study Area.
- The only direct Project-related construction activity that would occur in the Secondary Study Area is the installation of an additional pump into an existing bay at the Red Bluff Pumping Plant.
- The only direct Project-related maintenance activity that would occur in the Secondary Study Area is the sediment removal and disposal at the two intake locations (i.e., GCID Canal Intake and Red Bluff Pumping Plant).
- No direct Project-related construction or maintenance activities would occur in the Extended Study Area.
- Direct Project-related operational effects that would occur in the Extended Study Area are related to San Luis Reservoir operation; increased reliability of water supply to agricultural, municipal, and industrial water users; and the provision of an alternate Level 4 wildlife refuge water supply. Indirect effects to the operation of certain facilities that are located in the Extended Study Area, and indirect effects to the consequent water deliveries made by those facilities, would occur as a result of implementing the alternatives.
- The existing bank protection located upstream of the proposed Delevan Pipeline Intake/Discharge facilities would continue to be maintained and remain functional.
- No additional channel stabilization, grade control measures, or dredging in the Sacramento River at or upstream of the Delevan Pipeline Intake/Discharge facilities would be required.
- All residences located outside of proposed Project facility footprints, but within the Project Buffer, would be acquired, vacated, and demolished, as necessary, prior to the start of Project construction.
- Project construction activities and the transportation/delivery of construction vehicles, equipment, and materials are anticipated to occur between the hours of 6:00 a.m. and 7:00 p.m. on Mondays through Fridays. Nighttime and weekend construction and transportation/delivery of construction vehicles, equipment, and materials are not planned, but may occur on an as-needed basis. Nighttime construction would not be conducted within 1,000 feet of occupied residences between 10:00 p.m. and 7:00 a.m. Project construction haul times in residential communities would be limited to 7:00 a.m. to 10:00 p.m., and air brake restrictions would be applied in residential communities.

- Construction of Project facilities would require a substantial number of workers traveling to construction sites during the construction period (refer to Chapter 26 Navigation, Transportation, and Traffic). Truck traffic associated with the transport of construction materials, borrow and spoil materials, and concrete would also increase the number of heavy vehicles on roadways in the vicinity of the work sites during construction. Construction would increase the number of construction vehicles on the roadways adjacent to the construction activities. Passenger vehicles transporting workers would add to existing volumes and associated noise levels along the major transportation roadways in the vicinity of Project facilities. Truck traffic would be distributed throughout the day. Construction would also require other noise- and vibration-generating activities such as clearing and grubbing, demolition of existing structures, excavation, drilling, and blasting.
- Project implementation would involve the long-term operation of noise-generating stationary equipment, including pumping plants, mechanical cleaning mechanisms on fish screens, and emergency generators.

### **27.3.3.2 Methodology**

#### **Construction**

The area of influence for the evaluation of the impact of Project construction activities on ambient noise levels is defined as a 0.5-mile radius around the noise source. At a 0.5-mile radius around the noise source, there would be a 34-dBA noise reduction compared to a reference distance of 50 feet. It is important to note that other attenuating mechanisms, such as atmospheric or ground effects, may increase the amount of attenuation further, resulting in even lower noise levels. For construction equipment with typical reference noise levels of 80 and 90 dBA at 50 feet, this attenuation would result in noise levels from the equipment being reduced to 46 to 56 dBA at the 0.5-mile distance, respectively. Although these noise levels may still be noticeable at this distance, they would typically fall within the range of the Tehama, Colusa, and Glenn County General Plan requirements for steady operations.

Construction noise impacts were evaluated by estimating noise levels from various construction activities. Table 27-3 lists equipment noise levels from Table 1 of the FHWA Roadway Construction Noise Model User's Guide (FHWA, 2006). All listed noise levels are maximum A-weighted sound pressure levels ( $L_{max}$ ) at a reference distance of 50 feet. The acoustical usage factor is the fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation. The model calculates the total noise level at the receptor by logarithmically summing noise levels from each piece of equipment in use and accounting for the reduction of noise over distance caused by geometric divergence<sup>2</sup>. At farther distances, additional attenuation (e.g., ground effects and atmospheric attenuation) can be substantial, but the model does not account for this additional attenuation. Therefore, the model output should be considered conservatively high.

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<sup>2</sup> Geometric divergence is the primary mechanism of noise reduction close to a noise source.

**Table 27-3  
Construction Equipment Noise Levels**

<b>Equipment Description</b>	<b>Acoustical Usage Factor (Percent)</b>	<b>Noise Control Specification Lmax at 50 feet (dBA)</b>	<b>Actual Measured Lmax at 50 feet (dBA)</b>	<b>Actual Data Samples (Count)</b>
All Other Equipment >5 hp	50	85	N/A	0
Auger Drill Rig	20	85	84	36
Backhoe	40	80	78	372
Bar Bender	20	80	N/A	0
Blasting	NA	94	N/A	0
Boring Jack Power Unit	50	80	83	1
Chain Saw	20	85	84	46
Clam Shovel (dropping)	20	93	87	4
Compactor (ground)	20	80	83	57
Compressor (air)	40	80	78	18
Concrete Batch Plant	15	83	N/A	0
Concrete Mixer Truck	40	85	79	40
Concrete Pump Truck	20	82	81	30
Concrete Saw	20	90	90	55
Crane	16	85	81	405
Dozer	40	85	82	55
Drill Rig Truck	20	84	79	22
Drum Mixer	50	80	80	1
Dump Truck	40	84	76	31
Excavator	40	85	81	170
Flat Bed Truck	40	84	74	4
Front End Loader	40	80	79	96
Generator	50	82	81	19
Generator (<25 kVA, variable message signs)	50	70	73	74
Gradall	40	85	83	70
Grader	40	85	N/A	0
Grapple (on backhoe)	40	85	87	1
Horizontal Boring Hydraulic Jack	25	80	82	6
Hydra Break Ram	10	90	N/A	0
Impact Pile Driver	20	95	101	11
Jackhammer	20	85	89	133
Man Lift	20	85	75	23
Mounted Impact Hammer (hoe ram)	20	90	90	212
Pavement Scarafier	20	85	90	2
Paver	50	85	77	9
Pickup Truck	40	55	75	1
Pneumatic Tools	50	85	85	90

**PRELIMINARY – SUBJECT TO CHANGE**

**Table 27-3  
Construction Equipment Noise Levels**

Equipment Description	Acoustical Usage Factor (Percent)	Noise Control Specification L <sub>max</sub> at 50 feet (dBA)	Actual Measured L <sub>max</sub> at 50 feet (dBA)	Actual Data Samples (Count)
Pumps	50	77	81	17
Refrigerator Unit	100	82	73	3
Rivet Buster/Chipping Gun	20	85	79	19
Rock Drill	20	85	81	3
Roller	20	85	80	16
Sand Blasting (single nozzle)	20	85	96	9
Scraper	40	85	84	12
Shears (on backhoe)	40	85	96	5
Slurry Plant	100	78	78	1
Slurry Trenching Machine	50	82	80	75
Soil Mix Drill Rig	50	80	N/A	0
Tractor	40	84	N/A	0
Vacuum Excavator (Vac-truck)	40	85	85	149
Vacuum Street Sweeper	10	80	82	19
Ventilation Fan	100	85	79	13
Vibrating Hopper	50	85	87	1
Vibratory Concrete Mixer	20	80	80	1
Vibratory Pile Driver	20	95	101	44
Warning Horn	5	85	83	12
Welder/Torch	40	73	74	5

Notes:

dBA = A-weighted decibel

hp = horsepower

kVA = kilovolt-amperes

L<sub>max</sub> = maximum sound pressure level

N/A = not available

Source: FHWA, 2006.

Table 27-3 indicates that the loudest equipment generally emits noise in the range of 80 to 90 dBA at 50 feet. Noise at any specific receptor is dominated by the closest and loudest equipment. The types and numbers of construction equipment near any specific receptor location would vary over time. The construction noise estimate was based on assumptions of multiple pieces of loud equipment operating close together near the edge of the construction site. This is believed to be a conservative, yet realistic, scenario. Additional assumptions include the following:

- One piece of equipment generating a reference noise level of 85 dBA (at a 50-foot distance with a 40 percent usage factor) located at the edge of the construction site
- Two pieces of equipment each generating reference noise levels of 85 dBA located 50 feet farther away on the construction site
- Two more pieces of equipment each generating reference noise levels of 85 dBA located 100 feet farther away on the construction site

**PRELIMINARY – SUBJECT TO CHANGE**

Table 27-4 provides construction equipment noise levels at various distances, as calculated using the preceding assumptions. This extrapolation is considered conservative because it considers only geometric spreading and does not account for absorption from atmospheric particles, physical topography, or vegetation.

**Table 27-4  
Construction Equipment Noise Levels versus Distance**

Distance from the Construction Site Boundary (feet)	L <sub>eq</sub> Noise Level (dBA)
50	83
100	79
200	74
400	69
800	63
1,600	58
3,200	52
6,400	46

Notes:

dBA = A-weighted decibel

L<sub>eq</sub> = equivalent sound pressure level

Source: Data developed using FHWA Roadway Construction Noise Model.

In the absence of a Tehama, Glenn, or Colusa County noise standard for construction activities, DWR's Specification 05-16 was interpreted. Section 01570 of DWR Specification 05-16 indicates that noise levels that exceed 60 dBA in areas where the ambient noise level is less than 60 dBA<sup>3</sup> require temporary sound walls. Therefore, 60 dBA was interpreted as the noise level in which mitigation would be required due to a significant impact.

Vibration generated by construction equipment typically spreads through the ground and diminishes in magnitude with increases in distance. Although effects of ground vibration may be imperceptible at low levels, they may result in detectable vibrations and slight damage to nearby structures at moderate and high levels, respectively. At the highest levels of vibration, damage to structures is primarily architectural (e.g., loosening and cracking of plaster or stucco coatings) and rarely results in structural damage. There is significant potential for impact from construction activities, such as blasting, pile-driving, vibratory compaction, demolition, and drilling or excavation, that occur in proximity to vibration-sensitive structures (FTA, 2006). Vibratory impacts from construction activities were evaluated by examining the presence and extent of these activities and their proximity to vibration-sensitive structures.

### **Operations and Maintenance**

Noise impacts from operation and maintenance of Project facilities were evaluated by comparing the noise levels generated by the Project facility equipment to noise standards that were set by the counties, and by comparing projected noise levels to projected ambient noise levels.

#### **27.3.4 Topics Eliminated from Further Analytical Consideration**

Within the Extended and Secondary study areas, no Project-related activities would expose people residing or working in the vicinity of the Project facilities to excessive aircraft-generated noise levels

<sup>3</sup>This noise level is applicable to the Primary Study Area.

because of the distance of existing public airports or private airstrips to the Project facilities. Therefore, potential impacts related to aircraft-generated noise (**Impact Noise-5** and **Impact Noise-6**) are not discussed further for these two study areas. Within the Primary Study Area, a public airport is located near the site of proposed modifications to the GCID Canal railroad siphon (**Impact Noise-5**). Potential impacts related to aircraft-generated noise are discussed for that Project facility only. Because a private airstrip is not located near Project facilities within the Primary Study Area, **Impact Noise-6** is not discussed further.

Although Project construction, operation, and maintenance activities would generate noise, there are no noise-sensitive receptors located within a 0.5-mile radius of the following Project facilities or their associated construction disturbance areas: Sites Reservoir Inundation Area, Sites Dams, Recreation Areas, Sites Pumping/Generating Plant, Sites Electrical Switchyard, Tunnel from Sites Pumping/Generating Plant to Sites Inlet/Outlet Structure, Sites Reservoir Inlet/Outlet Structure, Field Office Maintenance Yard, Holthouse Reservoir Complex, Holthouse Reservoir Electrical Switchyard, and Delevan Pipeline Electrical Switchyard. These facilities are, therefore, not evaluated.

### **27.3.5 Impacts Associated with the No Project/No Action Alternative**

#### **27.3.5.1 Extended, Secondary, and Primary Study Areas – No Project/No Action Alternative**

##### **Construction, Operation, and Maintenance Impacts**

*Agricultural Water Use, Municipal and Industrial Water Use, Wildlife Refuge Water Use, and San Luis Reservoir, Trinity Lake, Lewiston Lake, Trinity River, Klamath River Downstream of the Trinity River, Whiskeytown Lake, Spring Creek, Shasta Lake, Sacramento River, Keswick Reservoir, Clear Creek, Lake Oroville, Thermalito Complex (Thermalito Diversion Pool, Thermalito Forebay, and Thermalito Afterbay); Feather River, Sutter Bypass, Yolo Bypass, Folsom Lake, Lake Natoma, American River, Sacramento-San Joaquin Delta, Suisun Bay, San Pablo Bay, and San Francisco Bay*

##### ***Impact Noise-1: Expose Persons to or Generation of Noise Levels in Excess of Established Standards***

The No Project/No Action Alternative includes implementation of projects and programs being constructed, or those that have gained approval, as of June 2009. The impacts of these projects have already been evaluated on a project-by-project basis, pursuant to CEQA and/or NEPA, and their potential to exceed established standards has been addressed in those environmental documents. Therefore, **there would not be a substantial adverse effect** on noise levels, when compared to Existing Conditions.

Population growth is expected to occur in California throughout the period of Project analysis (i.e., 100 years), and is included in the assumptions for the No Project/No Action Alternative. A larger population could be expected to cause increases in existing ambient noise levels. Noise impacts that would occur as a result of the increased population would be managed at the local level (e.g., cities and counties) in accordance with those agencies' regulations. Therefore, **there would not be a substantial adverse effect**, when compared to Existing Conditions.

In addition, projects considered within the No Project/No Action Alternative are not located within the Primary Study Area, and therefore, **there would not be a substantial adverse effect** on ambient noise levels within that study area, when compared to Existing Conditions.

***Impact Noise-2: Expose Persons to or Generation of Excessive Groundborne Vibration or Groundborne Noise Levels***

Refer to the **Impact Noise-1** discussion. The discussion also applies to groundborne vibration and noise levels.

***Impact Noise-3: Result in a Substantial Permanent Increase in Ambient Noise Levels in the Project Vicinity above Levels Existing without the Project***

Refer to the **Impact Noise-1** discussion regarding the projects that are included in the No Project/No Action Alternative not being located in the Primary Study Area. The discussion also applies to ambient noise levels.

***Impact Noise-4: Result in a Substantial Temporary or Periodic Increase in Ambient Noise Levels in the Project Vicinity above Levels Existing without the Project***

Refer to the **Impact Noise-1** discussion regarding the projects that are included in the No Project/No Action Alternative not being located in the Primary Study Area. The discussion also applies to ambient noise levels.

***Impact Noise-5: Expose People Residing or Working in the Project Area to Excessive Noise Levels (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)***

Refer to the **Impact Noise-1** discussion regarding the projects that are included in the No Project/No Action Alternative not being located in the Primary Study Area. The discussion also applies to excessive noise levels.

***Impact Noise-6: Expose People Residing or Working in the Project Area to Excessive Noise Levels (for a Project within the Vicinity of a Private Airstrip)***

Refer to the **Impact Noise-1** discussion regarding the projects that are included in the No Project/No Action Alternative not being located in the Primary Study Area. The discussion also applies to excessive noise levels.

**27.3.6 Impacts Associated with Alternative A**

**27.3.6.1 Extended Study Area – Alternative A**

**Construction, Operation, and Maintenance Impacts**

*Agricultural Water Use, Municipal and Industrial Water Use, Wildlife Refuge Water Use, and San Luis Reservoir*

***Impact Noise-1: Expose Persons to or Generation of Noise Levels in Excess of Established Standards***

There would be no direct Project-related construction or maintenance occurring in the Extended Study Area; therefore, no exceedance of established standards would occur and there would be **no impact** on noise levels from construction or maintenance activities in the Extended Study Area, when compared to Existing Conditions and the No Project/No Action Alternative.

Operation of San Luis Reservoir would be altered to accommodate Project operation, which would result in more frequent and larger surface water elevation fluctuations at the reservoir than currently occurs there. In addition, Project operation would result in increased water supply reliability to agricultural, municipal, and industrial users, and the wildlife refuges in the Extended Study Area. These operations would not be expected to change existing noise levels. Therefore, there would be **no impact** on noise levels from operations in the Extended Study Area, when compared to both Existing Conditions and the No Project/No Action Alternative.

***Impact Noise-2: Expose Persons to or Generation of Excessive Groundborne Vibration or Groundborne Noise Levels***

Because there would be no direct Project-related construction or maintenance occurring in the Extended Study Area, there would be **no impact** on existing groundborne vibration or noise levels from construction or maintenance activities in the Extended Study Area, when compared to Existing Conditions and the No Project/No Action Alternative.

***Impact Noise-3: Result in a Substantial Permanent Increase in Ambient Noise Levels in the Project Vicinity above Levels Existing without the Project***

Refer to the **Impact Noise-1** discussion. The discussion also applies to ambient noise levels.

***Impact Noise-4: Result in a Substantial Temporary or Periodic Increase in Ambient Noise Levels in the Project Vicinity above Levels Existing without the Project***

Refer to the **Impact Noise-1** discussion. The discussion also applies to ambient noise levels.

**27.3.6.2 Secondary Study Area – Alternative A**

**Construction, Operation, and Maintenance Impacts**

*Trinity Lake, Lewiston Lake, Trinity River, Klamath River Downstream of the Trinity River, Whiskeytown Lake, Spring Creek, Shasta Lake, Sacramento River, Keswick Reservoir, Clear Creek, Lake Oroville, Thermalito Complex (Thermalito Diversion Pool, Thermalito Forebay, and Thermalito Afterbay); Feather River; Sutter Bypass; Yolo Bypass; Folsom Lake; Lake Natoma; American River; Sacramento-San Joaquin Delta; Suisun Bay; San Pablo Bay; and San Francisco Bay*

***Impact Noise-1: Expose Persons to or Generation of Noise Levels in Excess of Established Standards***

Project operation would affect the flow regime or surface water elevations of many of the facilities in the Secondary Study Area (listed above). However, changes in flow regime or surface water elevations would not be expected to change existing noise levels. Therefore, there would be **no impact** on noise levels from Project operations in the Secondary Study Area, as compared to both Existing Conditions and the No Project Alternative.

***Impact Noise-2: Expose Persons to or Generation of Excessive Groundborne Vibration or Groundborne Noise Levels***

Refer to the **Impact Noise-1** discussion. The discussion also applies to groundborne vibration and noise levels.

***Impact Noise-3: Result in a Substantial Permanent Increase in Ambient Noise Levels in the Project Vicinity above Levels Existing without the Project***

Refer to the **Impact Noise-1** discussion. The discussion also applies to ambient noise levels.

***Impact Noise-4: Result in a Substantial Temporary or Periodic Increase in Ambient Noise Levels in the Project Vicinity above Levels Existing without the Project***

Refer to the **Impact Noise-1** discussion. The discussion also applies to ambient noise levels.

***Pump Installation at the Red Bluff Pumping Plant***

***Impact Noise-1: Expose Persons to or Generation of Noise Levels in Excess of Established Standards***

The only direct Project-related construction that would occur in the Secondary Study Area is the installation of an additional pump into an existing bay at the Red Bluff Pumping Plant. Glenn County exempts construction site sounds between 7:00 a.m. and 7:00 p.m. If construction activities occur outside of the exemption period, they would be conducted in compliance with applicable noise standards. Therefore, construction activities associated with the installation of an additional pump would have a **less-than-significant impact** on noise levels, when compared to Existing Conditions and the No Project/No Action Alternative.

Pump operation would also generate noise. However, the pumping plant already has several pumps operating and the addition of one pump would not be expected to generate noise that could be distinguished from existing noise levels. Therefore, operation of an additional pump at the Red Bluff Pumping Plant would have a **less-than-significant impact** on noise levels, when compared to Existing Conditions and the No Project/No Action Alternative.

The only direct Project-related maintenance activity that would occur in the Secondary Study Area is the removal of sediment from the existing GCID Canal and Red Bluff Pumping Plant intakes, located in Glenn and Tehama counties, respectively. Project-related operational changes at these facilities could result in increased sedimentation at the intakes and consequently require increased rates of sediment removal. Sediment removal activities, which would involve the use of heavy machinery and equipment (such as bulldozers, excavators, dump trucks, and gradalls<sup>4</sup>), would generate noise. It is expected that maintenance activities would occur during the day, between the hours that Glenn County exempts construction site sounds. If maintenance activities occur outside of the exemption period, they would be conducted in compliance with applicable noise standards. Therefore, maintenance activities associated with the removal of sediment from the existing GCID Canal and Red Bluff Pumping Plant intakes would have a **less-than-significant impact** on noise levels, when compared to Existing Conditions and the No Project/No Action Alternative.

***Impact Noise-2: Expose Persons to or Generation of Excessive Groundborne Vibration or Groundborne Noise Levels***

The installation of an additional pump into an existing bay at the Red Bluff Pumping Plant may generate groundborne vibration and noise. However, these activities would occur during the daytime and would be temporary. Therefore, construction activities at this facility would result in a **less-than-significant impact** at the nearest noise-sensitive receptors, when compared to Existing Conditions and the No Project/No Action Alternative.

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<sup>4</sup> Gradalls are hydraulic wheel-mounted backhoes often used with wide buckets for dressing earth slopes.

Pump operation would also generate noise and may generate groundborne vibration. However, the pumping plant already has several pumps operating and the addition of one pump would not be expected to generate noise or vibration that could be distinguished from existing levels. Therefore, operation of an additional pump at the Red Bluff Pumping Plant would have a **less-than-significant impact** on groundborne noise and vibration levels, when compared to Existing Conditions and the No Project/No Action Alternative.

Maintenance activities associated with sediment removal and disposal at the two intake locations (i.e., GCID Canal Intake and Red Bluff Pumping Plant) could also result in groundborne vibration or groundborne noise levels. However, these activities would occur during the daytime and would be temporary. Therefore, maintenance activities would result in a **less-than-significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

***Impact Noise-3: Result in a substantial permanent increase in ambient noise levels in the Project vicinity above Levels Existing without the Project***

There are several residences within a 0.5-mile radius of the GCID Canal Intake facilities. There are three residences located on the opposite side of the river from the Red Bluff Pumping Plant, less than one mile from the Project construction site. In addition, the Sacramento River Discovery Center is located approximately 0.25 mile from the pumping plant.

Construction activities related to installation of an additional pump at the Red Bluff Pumping Plant facility would generate noise that would be temporary, not permanent. Therefore, noise levels from construction would have **no impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

Operation of the additional pump at the Red Bluff Pumping Plant would result in a permanent increase in ambient noise levels. However, the pumping plant already has several pumps operating and the addition of one pump would not be expected to generate noise that could be distinguished from existing levels. Therefore, operation of an additional pump at the Red Bluff Pumping Plant would have a **less-than-significant impact** on noise levels, when compared to Existing Conditions and the No Project/No Action Alternative.

Maintenance activities at the GCID Canal and the Red Bluff Pumping Plant would increase the ambient noise levels at those facilities when the maintenance activities are occurring. Because maintenance activities would be required throughout the life of the Project, and those activities would generate noise, that noise is considered a long-term impact. Because the noise emitted from maintenance activities would be intermittent, i.e., lasting only as long as the activity occurred, the maintenance activities would not result in a permanent increase in noise levels. Therefore, Project maintenance activities would result in **no impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

***Impact Noise-4: Result in a Substantial Temporary OR Periodic Increase in Ambient Noise Levels in the Project Vicinity above Levels Existing without the Project***

Refer to the **Impact Noise-1** discussion. The discussion also applies to ambient noise levels.

### **27.3.6.3 Primary Study Area – Alternative A**

#### **Construction, Operation, and Maintenance Impacts**

Modeling results presented in Table 27-3 indicate that noise-sensitive receptors would be subjected to noise levels from construction ranging from 83 dBA at 50 feet from the construction site boundary to

52 dBA at 3,200 feet. At 0.5 mile (the boundary for the area of influence for noise impacts), construction noise would attenuate to approximately 55 dBA. Noise levels resulting from construction and operation activities could disturb adjacent uses if noise-sensitive receptors are located within this range of distances.

The sources of noise associated with construction, operation, and maintenance of the Road Relocations and South Bridge, GCID Canal Facilities Modifications, TRR and associated facilities, Delevan Pipeline and Transmission Line, Delevan Pipeline Intake Facilities, and Project Buffer, as well as distances from those facilities to the nearest noise-sensitive receptors located within a 0.5-mile radius, are described below.

### *Road Relocations and South Bridge*

#### ***Impact Noise-1: Expose Persons to or Generation of Noise Levels in Excess of Established Standards***

Glenn County and Colusa County do not have a noise ordinance. Glenn County exempts construction site sounds between 7:00 a.m. and 7:00 p.m. Noise emitted from construction activities associated with the road relocations and the new South Bridge would exceed DWR's Specification 05-16. Therefore, construction activities would have a **significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

The Colusa County Code restricts noise generated from any developed use to a DNL of 60 dB or less as measured at the nearest residential zoned property. In addition, developed uses must not exceed a median hourly noise level of 50 dBA in daytime and 45 dBA in the nighttime. Project operation would result in a continuation of travel on the existing roads (resulting in a **less-than-significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative) and also travel on the new and/or relocated Project roads and the new bridge. Travel on new and/or relocated roads would introduce vehicle noise to areas that do not currently experience traffic noise. Traffic noise levels, although they would increase from Existing Conditions in those areas, are not expected to exceed established standards, resulting in a **less-than-significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

Maintenance of the roads and bridge would occur periodically, and would result in travel on the existing, new, and relocated roads and the new bridge. Maintenance activities on the roads and bridge would also generate noise. Maintenance activities associated with the road relocations and the new South Bridge would need to comply with applicable noise standards. By meeting the noise standards, construction activities would have a **less-than-significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

#### ***Impact Noise-2: Expose Persons to or Generation of Excessive Groundborne Vibration or Groundborne Noise Levels***

Project construction ground disturbing activities, such as grading, may generate localized groundborne vibration and noise. Any Project construction groundborne vibration and noise would occur during daytime hours, and would be temporary. No construction activities with the potential for significant impact would occur. Therefore, road and bridge construction would result in a **less-than-significant impact** related to groundborne vibration and noise, when compared to Existing Conditions and the No Project/No Action Alternative.

Project operation (i.e., travel on the roads and bridge) would not result in groundborne vibration and noise, resulting in **no impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

Typical road and bridge maintenance activities (such as chip sealing, patching, asphalt overlays, repair of guardrails, embankment and/or abutment repair, clearing debris, and safety/maintenance inspections) are not expected to cause groundborne vibration and noise, resulting in **no impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

***Impact Noise-3: Result in a Substantial Permanent Increase in Ambient Noise Levels in the Project Vicinity above Levels Existing without the Project***

Construction activities, including associated construction traffic, would be temporary, and therefore, would cause no permanent increase in ambient noise levels in the vicinity of these Project features, resulting in **no impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

During Project operation and maintenance, the introduction of vehicles onto new roads, relocated existing roads, and the South Bridge would result in a permanent increase in ambient noise levels from vehicle traffic. This would result in a **less-than-significant impact** on the ambient noise levels of those roadways, when compared to Existing Conditions and the No Project/No Action Alternative because there would be no noise-sensitive receptors located within a 0.5-mile radius.

Project operation would result in a continuation of travel on the existing roads (resulting in a **less-than-significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative) and also travel on the new and/or relocated Project roads and the new bridge. Travel on new and/or relocated roads would introduce vehicle noise to areas that do not currently experience traffic noise. Traffic noise levels, although they would permanently increase from Existing Conditions in those areas, are not expected to be substantial, resulting in a **less-than-significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

Road and bridge maintenance activities would occur periodically, and would result in travel on the existing, new, and relocated roads and the new bridge. Maintenance activities on the roads and bridge would also generate noise. Maintenance activities would be long-term, but would result in intermittent (not permanent) increases in noise, resulting in **no impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

***Impact Noise-4: Result in a Substantial Temporary or Periodic Increase in Ambient Noise Levels in the Project Vicinity above Levels Existing without the Project***

Construction activities associated with the existing, relocated, and new roads and the South Bridge would be temporary, emitting noise levels of 83 dBA at 50 feet from the construction site boundary to approximately 55 dBA at 0.5 mile (the boundary for the area of influence of noise impacts), resulting in an increase in ambient noise levels in the areas around the roads and bridge.

There are three residences located near to the affected roads: one residence located approximately 0.6 mile east of Sulphur Gap Road, one residence located approximately 0.75 mile east of Sulphur Gap Road, and one residence located approximately 600 feet south of County Road 69/North Road, to the west of the T-C Canal. The first two residences mentioned are beyond the noise impact boundary of 0.5 mile. The residence located south of County Road 69/North Road would experience noise levels of approximately 66 dBA when Project construction work to that road was occurring nearest to the

residence. Applying this construction-related noise level to DWR's Specification 05-16 60-dBA limit for requiring sound walls, would result in a **significant impact** on ambient noise levels at that location, when compared to Existing Conditions and the No Project/No Action Alternative.

Project operation would result in a continuation of travel on the existing roads and also travel on the new and/or relocated roads and the new bridge. Travel on new and/or relocated roads would introduce vehicle noise to areas that do not currently experience traffic noise. These expected long-term travel patterns would not result in substantial temporary or periodic noise increases, resulting in **no impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

Road and bridge maintenance activities would occur periodically, and would result in travel on existing, new, and relocated roads and the new bridge. Maintenance activities on the roads and bridge would also generate noise. Maintenance activities would be long-term, and would result in a temporary and periodic increase in noise that would not be substantial, resulting in a **less-than-significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

### *Glenn-Colusa Irrigation District Canal Facilities Modifications*

#### ***Impact Noise-1: Expose Persons to or Generation of Noise Levels in Excess of Established Standards***

Glenn County exempts construction site sounds between 7:00 a.m. and 7:00 p.m. Construction activities that occur outside of the exemption period would comply with applicable noise standards. Due to the County's daytime construction exemption, construction activities would have a **less than-significant-impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

Project operation and maintenance activities at the headgate, canal lining, and railroad siphon locations and their associated noise levels are not expected to increase from existing levels because the same noise-generating activities that currently occur along the GCID Canal would continue, resulting in a **less-than-significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

#### ***Impact Noise-2: Expose Persons to or Generation of Excessive Groundborne Vibration or Groundborne Noise Levels***

The temporary bypass channel would be constructed using a combination of excavation, earth embankment, and sheetpile walls to isolate the construction site from the canal. These construction activities are considered to have a potential for impact when occurring in proximity to vibration-sensitive structures. There are several existing residences within 0.25 mile of the proposed headgate and canal lining location, and several more within a 0.5-mile radius of those Project facilities. The railroad siphon that would be replaced would be located adjacent to several neighborhoods in the City of Willows. Therefore, construction activities would result in **potentially significant impact** on groundborne vibration and noise levels, when compared to Existing Conditions and the No Project/No Action Alternative.

Project operation and maintenance activities at the headgate, canal lining, and railroad siphon locations are not expected to cause groundborne vibration or noise that would differ from existing levels because the same noise-generating activities that currently occur along the GCID Canal would continue, resulting in a **less-than-significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

***Impact Noise-3: Result in a Substantial Permanent Increase in Ambient Noise Levels in the Project Vicinity above Levels Existing without the Project***

Project construction activities at these locations would not permanently increase ambient noise levels there, resulting in **no impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

Project operation and maintenance activities at these locations and their associated noise levels are not expected to increase substantially from existing levels because the same noise-generating activities that currently occur along the GCID Canal would continue, resulting in a **less-than-significant impact** on ambient noise levels, when compared to Existing Conditions and the No Project/No Action Alternative.

Required maintenance activities would be very similar to current maintenance; however, dredging of the Intake Channel would now occur periodically throughout the year instead of every three years. The intake and fish screen facility would operate year-round and would be very similar to existing operations. Therefore, operation and maintenance activities would result in a **less-than-significant impact** on ambient noise levels, when compared to Existing Conditions and the No Project/No Action Alternative.

***Impact Noise-4: Result in a Substantial Temporary or Periodic Increase in Ambient Noise Levels in the Project Vicinity above Levels Existing without the Project***

Project construction activities associated with the proposed GCID Canal Facilities Modifications would be temporary, generating noise levels of approximately 78 to 83 dBA at 50 feet (approximately 61 dBA at 0.25 mile). This would result in a **potentially significant impact** on ambient noise levels, when compared to Existing Conditions and the No Project/No Action Alternative.

Operation of the GCID Canal Facilities Modifications would be a long-term impact, not a temporary or periodic increase in noise levels. This would result in **no impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

Maintenance of the GCID Canal Facilities Modifications would be a long-term impact that would result in a temporary and periodic increase in noise levels that would not be substantial. This would result in a **less-than-significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

***Impact Noise-5: Expose People Residing or Working in the Project Area to Excessive Noise Levels (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)***

The Willows-Glenn County Airport is located approximately 1.3 miles from the railroad siphon that would be replaced during the GCID Canal Facilities modifications. However, Project construction workers and operations/maintenance personnel would be provided OSHA-approved hearing protection, if necessary. Therefore, exposure to airport-associated noise levels would result in a **less-than-significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

*Terminal Regulating Reservoir, Glenn-Colusa Irrigation District Canal Connection to the Terminal Regulating Reservoir, Terminal Regulating Reservoir Pumping/Generating Plant, Terminal Regulating Reservoir Electrical Switchyard, Terminal Regulating Reservoir Pipeline, Terminal Regulating Reservoir Pipeline Road*

***Impact Noise-1: Expose Persons to or Generation of Noise Levels in Excess of Established Standards***

Colusa County does not have a noise ordinance. However, noise emitted from construction activities associated with the TRR, GCID Canal Connection to the TRR, TRR Pumping/Generating Plant, TRR Electrical Switchyard, TRR Pipeline, and TRR Pipeline Road would exceed DWR's Specification 05-16. Therefore, construction activities would result in a **significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

The operation of the proposed TRR and its associated facilities would result in operation of noise-generating stationary equipment, including a pumping plant and emergency generators. This operational noise would be a change from the noise that is currently generated at the site from its existing agricultural practices. Vendor-specific noise information is not currently available for the equipment needed to operate the TRR. However, it is possible that the generated noise levels would exceed established standards, resulting in a **potentially significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

Maintenance activities associated with sediment removal and disposal at the TRR and the pump operation could result in an increase in ambient noise levels. However, these activities are expected to result in a **less-than-significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

***Impact Noise-2: Expose Persons to or Generation of Excessive Groundborne Vibration or Groundborne Noise Levels***

Construction activities (e.g., transport of materials to the Project site, clearing and grading the construction work space, staging of construction materials, dewatering, and excavation and embankment construction) associated with the construction of the TRR and its associated facilities may generate groundborne vibration and noise. These construction activities would result in a **potentially significant impact**, when occurring in proximity to the nearest residence, when compared to Existing Conditions and the No Project/No Action Alternative.

Operation and maintenance activities associated with sediment removal and disposal and the Project's pump operation could also result in groundborne vibration or groundborne noise levels. However, these activities would result in a **less-than-significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

***Impact Noise-3: Result in a Substantial Permanent Increase in Ambient Noise Levels in the Project Vicinity above Levels Existing without the Project***

Construction activities associated with the TRR and its associated facilities would result in temporary impacts, not permanent impacts, resulting in **no impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

The long-term operation and maintenance of the proposed TRR and its associated facilities would result in operation of noise-generating stationary equipment, including a pumping plant and emergency

generators. This would be a change from the noise that is currently generated at the site from its existing agricultural practices. Vendor-specific noise information is not currently available for operation and maintenance equipment. However, it is possible that the noise levels that would be generated would result in a **potentially significant impact** on ambient noise levels at the nearest noise-sensitive receptor (a residence), when compared to Existing Conditions and the No Project/No Action Alternative.

***Impact Noise-4: Result in a Substantial Temporary or Periodic Increase in Ambient Noise Levels in the Project Vicinity above Levels Existing without the Project***

The construction of the TRR and its associated facilities would require excavation, transport, stockpiling, and grading. Construction equipment would generate noise levels between 80 and 85 dBA at a 50-foot distance (i.e., the nearest noise-sensitive receptor). This would result in a temporary **significant impact** on ambient noise levels during Project construction, particularly when working within the northeast corner of the TRR, when compared to Existing Conditions and the No Project/No Action Alternative.

Operation of the proposed TRR and its associated facilities would be a long-term impact, not a temporary or periodic increase in noise levels. This would result in **no impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

Maintenance of the proposed TRR and its associated facilities would be a long-term impact that would result in a temporary and periodic increase in noise levels that would not be substantial. This would result in a **less-than-significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

***Delevan Pipeline and Delevan Transmission Line***

The Delevan Transmission Line would parallel and overlap with the construction disturbance area of the Delevan Pipeline from the Delevan Pipeline Intake Facilities to the TRR. The transmission line and pipeline would then diverge as their alignments would continue west of the TRR to other Project facilities. There are no noise-sensitive receptors located within a 0.5-mile radius of the divergence area. This impact analysis, therefore, focuses on the segments of the Delevan Pipeline and Transmission Line that are located between the Delevan Pipeline Intake Facilities and the TRR. There are approximately 49 residences located within the construction disturbance area of the Delevan Pipeline and Transmission Line. The nearest residence that was identified for the TRR is also located within these facilities' construction disturbance area.

***Impact Noise-1: Expose Persons to or Generation of Noise Levels in Excess of Established Standards***

Colusa County does not have a noise ordinance. Noise emitted from construction activities associated with the Delevan Pipeline and Delevan Transmission Line would exceed DWR's Specification 05-16. Therefore, Delevan Pipeline and Delevan Transmission Line construction activities would have a **significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

The long-term operation of the proposed Delevan Pipeline would generate only minimal noise at the aboveground blow-off structures and air valve structures, resulting in a **less-than-significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative. Maintenance of the proposed pipeline would consist of periodic inspections and maintenance as needed, resulting in a **less-than-significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

The long-term operation and maintenance of the proposed Delevan Transmission Line would result in noise generated from two sources: the transmission line would emit a “hum”, and periodic maintenance trips to the individual transmission line towers by inspection vehicles would emit vehicle noise. These noise sources would not be expected to exceed applicable noise standards and would result in a **less-than-significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

***Impact Noise-2: Expose Persons to or Generation of Excessive Groundborne Vibration or Groundborne Noise Levels***

Construction activities (e.g., ground disturbing activities, including excavation and movement of heavy construction equipment) associated with the installation of the pipeline may generate groundborne vibration and noise. These construction activities would result in a **potentially significant impact**, when in proximity to noise-sensitive receptors (residences), when compared to Existing Conditions and the No Project/No Action Alternative.

Construction activities associated with installation of the proposed transmission line (clearing, grading, delivering construction materials at the staging areas, excavating tower footings, erecting the towers, and stringing the conductor) are not expected to generate groundborne vibration or noise, resulting in **no impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

Operation and maintenance of the pipeline and transmission line would require no ground disturbing activities and would result in **no impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

***Impact Noise-3: Result in a Substantial Permanent Increase in Ambient Noise Levels in the Project Vicinity above Levels Existing without the Project***

Construction of the Delevan Pipeline would require dewatering, as well as trenching of soils and alluvial material down to the design depth. Construction of the Delevan Transmission Line would require the construction of a temporary access road along the alignment and soil excavation for tower footings. Construction equipment would generate noise levels between 80 and 85 dBA at a 50-foot distance. However, these activities would be temporary, not permanent, resulting in **no impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

The long-term operation of the proposed Delevan Pipeline would generate minimal noise at the above-ground blow-off structures and air valve structures, resulting in a **less-than-significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

The long-term operation of the proposed Delevan Transmission Line would result in noise generated from two sources: the transmission line would emit a “hum”, and periodic maintenance trips to the individual transmission line towers by inspection vehicles would emit vehicle noise. These noise sources would not cause a substantial permanent increase in ambient noise levels, and would, therefore, result in a **less-than-significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

Maintenance of the proposed pipeline and transmission line would generate noise from vehicles and equipment on a periodic and temporary basis, not permanently. Therefore, there would be **no impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

***Impact Noise-4: Result in a Substantial Temporary or Periodic Increase in Ambient Noise Levels in the Project Vicinity above Levels Existing without the Project***

Construction activities associated with the Delevan Pipeline and Transmission Line would result in temporary increases in noise, emitting noise levels of between 80 and 85 dBA at a 50-foot distance, which would attenuate to approximately 55 dBA at 0.5 mile. This would result in a **significant impact** on the residences located within the construction disturbance area of the pipeline and transmission line, when compared to Existing Conditions and the No Project/No Action Alternative.

Operations activities would be a long-term impact, not a temporary or periodic increase in noise levels. This would result in **no impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

Maintenance activities would be a long-term impact that would result in a temporary and periodic increase in noise levels that would not be substantial. This would result in a **less-than-significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

***Delevan Pipeline Intake Facilities***

***Impact Noise-1: Expose Persons to or Generation of Noise Levels in Excess of Established Standards***

Colusa County does not have a noise ordinance. However, noise emitted from construction activities associated with the Delevan Pipeline Intake Facilities would exceed DWR's Specification 05-16. Therefore, construction activities would have a **significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

Operation and maintenance activities would involve the long-term operation of noise-generating stationary equipment, including the pumping plant, mechanical cleaning mechanisms on fish screens, and emergency generators. Noise is currently generated near the site from the existing adjacent Maxwell Irrigation District Pumping Plant. Vendor-specific noise information is not currently available for the equipment needed to operate this Project facility. However, it is possible that the generated noise levels would exceed established standards, resulting in a **potentially significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

***Impact Noise-2: Expose Persons to or Generation of Excessive Groundborne Vibration or Groundborne Noise Levels***

Construction of the Delevan Pipeline Intake Facilities would require the use of a vibratory pile driver to install a cofferdam. Because the nearest residence is located approximately 0.3 mile away from the intake facility footprint, groundborne vibration or groundborne noise levels are not expected to be excessive, resulting in a **less-than-significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

Operation and maintenance of the Delevan Pipeline Intake Facilities would not involve the use of equipment that would emit groundborne vibration or noise, resulting in **no impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

***Impact Noise-3: Result in a Substantial Permanent Increase in Ambient Noise Levels in the Project Vicinity above Levels Existing without the Project***

Construction of the proposed Delevan Pipeline Intake Facilities would result in temporary impacts, not permanent impacts on noise, resulting in **no impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

Project operation would involve the long-term operation of noise-generating stationary equipment, including the pumping plant, mechanical cleaning mechanisms on fish screens, and emergency generators. Noise is currently generated near the site from the existing adjacent Maxwell Irrigation District Pumping Plant. Vendor-specific noise information is not currently available for the equipment needed to operate this Project facility. However, ambient noise levels are expected to increase, resulting in a **potentially significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

Maintenance activities would generate noise from vehicles and equipment on a periodic and temporary basis, not permanently. Therefore, there would be **no impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

***Impact Noise-4: Result in a Substantial Temporary or Periodic Increase in Ambient Noise Levels in the Project Vicinity above Levels Existing without the Project***

The construction of the Delevan Pipeline Intake Facilities would require installation of a cofferdam within the Sacramento River; dewatering, clearing and grading the construction workspace; excavating soils and alluvium from the forebay, afterbay, and pumping plant sites; construction of the levee, pump house, pump bays, forebay structure, and fish screens; and filling and re-grading, where needed. Modeling results presented in Table 27-4 indicate that noise-sensitive receptors would be subjected to noise levels from construction of approximately 58 dBA at 0.3 mile. Therefore, noise levels from construction would have **less-than-significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

Operations activities would be a long-term impact, not a temporary or periodic increase in noise levels. This would result in **no impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

Maintenance activities would be a long-term impact that would result in a temporary and periodic increase in noise levels that would not be substantial. This would result in a **less-than-significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

***Project Buffer***

***Impact Noise-1: Expose Persons to or Generation of Noise Levels in Excess of Established Standards***

Within the Project Buffer, a fence would be constructed, several existing structures would be demolished, and a fuelbreak would be created. Glenn County and Colusa County do not have a noise ordinance. Glenn County exempts construction site sounds between 7:00 a.m. and 7:00 p.m. Noise generated from fence construction is not expected to exceed DWR's Specification 05-16; however, noise emitted from demolition activities and fuelbreak discing may. Therefore, construction activities would have a **potentially significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

Operation and maintenance activities, including fence and fuelbreak maintenance, would generate noise (particularly fuelbreak work), resulting in a **potentially significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

***Impact Noise-2: Expose Persons to or Generation of Excessive Groundborne Vibration or Groundborne Noise Levels***

Construction of a fence, demolition of structures, and creation of a fuelbreak within the Project Buffer would not generate groundborne vibration or groundborne noise. This would result in **no impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

In addition, operation and maintenance activities (including fence and fuelbreak maintenance) would not generate groundborne vibration or groundborne noise, resulting in **no impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

***Impact Noise-3: Result in a Substantial Permanent Increase in Ambient Noise Levels in the Project Vicinity above Levels Existing without the Project***

Construction and demolition activities would result in temporary impacts, not permanent impacts, resulting in **no impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

Operations activities would be long-term, resulting in a **less-than-significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

Maintenance activities would be long-term, and would not result in a permanent increase in ambient noise levels, resulting in **no impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

***Impact Noise-4: Result in a Substantial Temporary or Periodic Increase in Ambient Noise Levels in the Project Vicinity above Levels Existing without the Project***

Construction and demolition activities would result in temporary noise impacts, resulting in a **less-than-significant impact** at noise-sensitive receptors, when compared to Existing Conditions and the No Project/No Action Alternative.

Operations activities would be a long-term impact, not a temporary or periodic increase in noise levels. This would result in **no impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

Maintenance activities would be a long-term impact that would result in a temporary and periodic increase in noise levels. Noise levels associated with fence maintenance would not be substantial, resulting in a **less-than-significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative. However, fuelbreak maintenance would result in a **potentially significant impact** to ambient noise levels, when compared to Existing Conditions and the No Project/No Action Alternative.

## 27.3.7 Impacts Associated with Alternative B

### 27.3.7.1 Extended and Secondary Study Areas – Alternative B

#### **Construction, Operation, and Maintenance Impacts**

The impacts associated with Alternative B, as they relate to excessive noise levels (**Impact Noise-1**), excessive groundborne vibration or noise levels (**Impact Noise-2**), permanent increases in ambient noise levels (**Impact Noise-3**), and temporary or periodic increases in ambient noise levels (**Impact Noise-4**), would be the same as described for Alternative A for the Extended and Secondary study areas.

### 27.3.7.2 Primary Study Area – Alternative B

#### **Construction, Operation, and Maintenance Impacts**

The following Primary Study Area Project facilities are included in both Alternatives A and B. These facilities would require the same construction methods and operation and maintenance activities regardless of alternative, and would, therefore, result in the same construction, operation, and maintenance impacts to noise:

- Recreation Areas
- Sites Pumping/Generating Plant
- Sites Electrical Switchyard
- Tunnel from Sites Pumping/Generating Plant to Sites Reservoir Inlet/Outlet Structure
- Sites Reservoir Inlet/Outlet Structure
- Field Office Maintenance Yard
- Holthouse Reservoir Complex
- Holthouse Reservoir Electrical Switchyard
- GCID Canal Facilities Modifications
- GCID Canal Connection to the TRR
- TRR
- TRR Pumping/Generating Plant
- TRR Electrical Switchyard
- TRR Pipeline
- TRR Pipeline Road
- Delevan Pipeline
- Delevan Pipeline Electrical Switchyard

Alternative B includes the construction of a 1.81-MAF reservoir. The increased reservoir size necessitates the addition of two saddle dams and the movement of various associated Project features. However, similar to Alternative A, there are no noise-sensitive receptors located within a 0.5-mile radius of these facilities.

The Alternative B Delevan Transmission Line would differ from Alternative A. Alternative B includes no transmission line alignment between the Sacramento River and the WAPA or PG&E transmission lines. The transmission line would be approximately three miles long, from the proposed Sites Electrical Switchyard to the WAPA or PG&E transmission line, which are located west of the TRR. However, similar to Alternative A, there are no noise-sensitive receptors located within a 0.5-mile radius of this construction disturbance area.

The Alternative B Road Relocations and South Bridge would differ slightly from those described for Alternative A. The lengths of the saddle dam access roads included in Alternative A would be reduced in Alternative B because the dams would be larger and would be located closer to the main roads. In addition, an extension of an access road would be constructed for Alternative B to provide access from Saddle Dam 3 to saddle dams 1 and 2. However, there are no noise-sensitive receptors located within a 0.5-mile radius of these portions of the road relocations. Construction activities along the Road 69 segment of the North Road in the vicinity of a residence would have the same impact on excessive noise levels (**Impact Noise-1**), excessive groundborne vibration or noise levels (**Impact Noise-2**), permanent increases in ambient noise levels (**Impact Noise-3**), and temporary or periodic increases in ambient noise levels (**Impact Noise-4**) as described for Alternative A.

The size of the Alternative B Project Buffer would differ from that of Alternative A because the footprints of some of the Project facilities that are surrounded by the Project Buffer would differ between the alternatives. However, the boundary of the Project Buffer would be the same for Alternatives A and B and would be the same distance from noise-sensitive receptors as described for Alternative A. In addition, these differences in the size of the area included within the buffer would not change the type of construction, operation, and maintenance activities that were described for Alternative A. The Project Buffer would, therefore, have the same impact on excessive noise levels (**Impact Noise-1**), excessive groundborne vibration or noise levels (**Impact Noise-2**), permanent increases in ambient noise levels (**Impact Noise-3**), and temporary or periodic increases in ambient noise levels (**Impact Noise-4**) as described for Alternative A.

Alternative B would replace the Delevan Pipeline Intake Facilities with the Delevan Pipeline Discharge Facility. The Delevan Pipeline would be operated as a release-only pipeline, so the associated Delevan Pipeline Discharge Facility would, therefore, not include a fish screen or any of the facilities needed for the pumping and generating operations that were described for Alternative A. The construction, operation, and maintenance impacts on noise levels from this facility are discussed below.

#### *Delevan Pipeline Discharge Facility*

The proposed Delevan Pipeline Discharge Facility would be smaller than the Delevan Pipeline Intake Facilities included in Alternative A. The proposed Discharge Facility would also have fewer Project features, which would result in a shorter construction time frame for this facility, when compared to the facility included in Alternative A.

#### ***Impact Noise-1: Expose Persons to or Generation of Noise Levels in Excess of Established Standards***

Construction of the Delevan Pipeline Discharge Facility would require installation of a cofferdam within the Sacramento River; dewatering, clearing, and grading the construction workspace; excavation of the bank and backfilling the area for the spillway, channel, and valve house; construction of the setback level and slurry walls, valve house, channel, and spillway; and placing rip rap rock slope protection along the river bank.

Colusa County does not have a noise ordinance. However, noise emitted from construction activities associated with the Delevan Pipeline Discharge Facility would exceed DWR's Specification 05-16. Therefore, construction activities would have a **significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative

Operation and maintenance activities would involve the long-term operation of noise-generating stationary equipment. Noise is currently generated near the site from the existing adjacent Maxwell Irrigation District Pumping Plant. Vendor-specific noise information is not currently available for the equipment needed to operate this Project facility. However, it is possible that the generated noise levels would exceed established standards, resulting in a **potentially significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

***Impact Noise-2: Expose Persons to or Generation of Excessive Groundborne Vibration or Groundborne Noise Levels***

Construction of the Delevan Pipeline Discharge Facility would require the use of a vibratory pile driver to install a cofferdam. Because the nearest residence is located approximately 0.3 mile away from the facility footprint, groundborne vibration or groundborne noise levels are not expected to be excessive, resulting in a **less-than-significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

Operation and maintenance of the Delevan Pipeline Discharge Facility would not involve the use of equipment that would emit groundborne vibration or noise, resulting in **no impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

***Impact Noise-3: Result in a Substantial Permanent Increase in Ambient Noise Levels in the Project Vicinity above Levels Existing without the Project***

Construction equipment would generate noise that would be temporary, not permanent. Therefore, noise levels from Project construction would have **no impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

Project operation would involve the long-term operation of noise-generating stationary equipment. Noise is currently generated near the site from the existing adjacent Maxwell Irrigation District Pumping Plant. Vendor-specific noise information is not currently available for the equipment needed to operate this Project facility. However, ambient noise levels are expected to increase, resulting in a **potentially significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

Maintenance activities would generate noise from vehicles and equipment on a periodic and temporary basis, not permanently. Therefore, there would be **no impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

***Impact Noise-4: Result in a Substantial Temporary or Periodic Increase in Ambient Noise Levels in the Project Vicinity above Levels Existing without the Project***

The nearest residence is located approximately 0.3 mile northwest of the Delevan Pipeline Discharge Facility footprint.

The construction of the Delevan Pipeline Discharge Facility would require installation of a cofferdam within the Sacramento River; dewatering, clearing and grading the construction workspace; excavating soils; construction of the levee; and filling and re-grading, where needed. Modeling results presented in Table 27-4 indicate that noise-sensitive receptors would be subjected to noise levels from construction of approximately 58 dBA at 0.3 mile. Therefore, noise levels from construction would have **less-than-significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

Operations activities would be a long-term impact, not a temporary or periodic increase in noise levels. This would result in **no impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

Maintenance activities would be a long-term impact that would result in a temporary and periodic increase in noise levels that would not be substantial. This would result in a **less-than-significant impact**, when compared to Existing Conditions and the No Project/No Action Alternative.

### **27.3.8 Impacts Associated with Alternative C**

#### **27.3.8.1 Extended and Secondary Study Areas – Alternative C**

##### **Construction, Operation, and Maintenance Impacts**

The impacts associated with Alternative C, as they relate to excessive noise levels (**Impact Noise-1**), excessive groundborne vibration or noise levels (**Impact Noise-2**), permanent increases in ambient noise levels (**Impact Noise-3**), and temporary or periodic increases in ambient noise levels (**Impact Noise-4**), would be the same as described for Alternative A for the Extended and Secondary study areas.

#### **27.3.8.2 Primary Study Area – Alternative C**

##### **Construction, Operation, and Maintenance Impacts**

The following Primary Study Area Project facilities are included in Alternatives A, B, and C. These facilities would require the same construction methods and operation and maintenance activities regardless of alternative, and would, therefore, result in the same construction, operation, and maintenance impacts to noise:

- Recreation Areas
- Sites Pumping/Generating Plant
- Sites Electrical Switchyard
- Tunnel from Sites Pumping/Generating Plant to Sites Reservoir Inlet/Outlet Structure
- Sites Reservoir Inlet/Outlet Structure
- Field Office Maintenance Yard
- Holthouse Reservoir Complex
- Holthouse Reservoir Electrical Switchyard
- GCID Canal Facilities Modifications
- GCID Canal Connection to the TRR
- TRR
- TRR Pumping/Generating Plant
- TRR Electrical Switchyard
- TRR Pipeline
- TRR Pipeline Road
- Delevan Pipeline
- Delevan Pipeline Electrical Switchyard

The Alternative C design of the Delevan Transmission Line and Delevan Pipeline Intake Facilities is the same as described for Alternative A. These facilities would require the same construction methods and operation and maintenance activities regardless of alternative, and would be located the same distance

from noise-sensitive receptors as described for Alternative A. They would, therefore, result in the same construction, operation, and maintenance impacts to noise as described for Alternative A.

The Alternative C design of the Sites Reservoir Inundation Area and Sites Reservoir Dams is the same as described for Alternative B. Therefore, there are no noise-sensitive receptors located within a 0.5-mile radius of these proposed facilities. These facilities would require the same construction methods and operation and maintenance activities regardless of alternative, and would, therefore, result in the same construction, operation, and maintenance impacts to land use as described for Alternative B.

The Alternative C design of the Road Relocations, South Bridge, TRR Pipeline Road, and the Electrical Distribution Lines is the same as described for Alternative B. Therefore, they would be located the same distance from noise-sensitive receptors as described for Alternative B. These facilities would require the same construction methods and operation and maintenance activities regardless of alternative, and would, therefore, result in the same construction, operation, and maintenance impacts to noise as described for Alternative B.

The boundary of the Project Buffer would be the same for all alternatives, but because the footprints of some of the Project facilities that are surrounded by the Project Buffer would differ between the alternatives, the acreage of land within the Project Buffer would also differ. However, this difference in the size of the area included within the buffer would not change the type of construction, operation, and maintenance activities that were described for Alternative A. It would, therefore, have the same impact have the same impact on excessive noise levels (**Impact Noise-1**), excessive groundborne vibration or noise levels (**Impact Noise-2**), permanent increases in ambient noise levels (**Impact Noise-3**), and temporary or periodic increases in ambient noise levels (**Impact Noise-4**) as described for Alternative A.

## 27.4 Mitigation Measures

Mitigation measures are provided below and summarized in Table 27-5 for the impacts that have been identified as significant or potentially significant.

**Table 27-5  
Summary of Mitigation Measures for  
Potential NODOS Project Impacts to Noise**

<b>Impact</b>	<b>Associated Project Facility</b>	<b>LOS Before Mitigation</b>	<b>Mitigation Measure</b>	<b>LOS After Mitigation</b>
Impact Noise-1: Expose Persons to or Generation of Noise Levels in Excess of Established Standards	Road Relocations and South Bridge, TRR, GCID Canal Connection to the TRR, TRR Pumping/Generating Plant, TRR Electrical Switchyard, TRR Pipeline, TRR Pipeline Road, Delevan Pipeline, Delevan Transmission Line, Delevan Pipeline Intake Facilities, Delevan Pipeline Discharge Facility (construction)	Significant	Mitigation Measure Noise-1a: DWR and Reclamation Shall Include in the Construction and Maintenance Contracts Specifications to Reduce Noise Levels	Less than Significant

**PRELIMINARY – SUBJECT TO CHANGE**

**Table 27-5  
Summary of Mitigation Measures for  
Potential NODOS Project Impacts to Noise**

Impact	Associated Project Facility	LOS Before Mitigation	Mitigation Measure	LOS After Mitigation
	<p>Project Buffer (construction)</p> <p>TRR, GCID Canal Connection to the TRR, TRR Pumping/Generating Plant, TRR Electrical Switchyard, TRR Pipeline, TRR Pipeline Road, Delevan Pipeline Intake Facilities, Project Buffer, Delevan Pipeline Discharge Facility (operation)</p> <p>Delevan Pipeline Intake Facilities, Project Buffer, Delevan Pipeline Discharge Facility (maintenance)</p>	<p>Potentially Significant</p> <p>Potentially Significant</p> <p>Potentially Significant</p>	<p>Mitigation Measure Noise-1a: DWR and Reclamation Shall Include in the Construction and Maintenance Contracts Specifications to Reduce Noise Levels</p> <p>Mitigation Measure Noise-1b: Design Facilities to Incorporate Noise Mitigation</p> <p>Mitigation Measure Noise-1a: DWR and Reclamation Shall Include in the Construction and Maintenance Contracts Specifications to Reduce Noise Levels</p>	<p>Less than Significant</p> <p>Less than Significant</p> <p>Less than Significant</p>
<p>Impact Noise-2: Expose Persons to or Generation of Excessive Groundborne Vibration or Groundborne Noise Levels</p>	<p>GCID Canal Facilities Modifications, TRR, GCID Canal Connection to the TRR, TRR Pumping/Generating Plant, TRR Electrical Switchyard, TRR Pipeline, TRR Pipeline Road, Delevan Pipeline, (construction)</p>	<p>Potentially Significant</p>	<p>Mitigation Measure Noise-2: Develop and Implement a Vibration Monitoring Plan</p>	<p>Less than Significant</p>

PRELIMINARY – SUBJECT TO CHANGE

**Table 27-5  
Summary of Mitigation Measures for  
Potential NODOS Project Impacts to Noise**

<b>Impact</b>	<b>Associated Project Facility</b>	<b>LOS Before Mitigation</b>	<b>Mitigation Measure</b>	<b>LOS After Mitigation</b>
Impact Noise-3: Result in a Substantial Permanent Increase in Ambient Noise Levels in the Project Vicinity Above Levels Existing without the Project	TRR, GCID Canal Connection to the TRR, TRR Pumping/Generating Plant, TRR Electrical Switchyard, TRR Pipeline, TRR Pipeline Road, Delevan Pipeline Intake Facilities, Delevan Pipeline Discharge Facility (operation)	Potentially Significant	Mitigation Measure Noise-1b: Design Facilities to Incorporate Noise Mitigation	Less than Significant
	TRR, GCID Canal Connection to the TRR, TRR Pumping/Generating Plant, TRR Electrical Switchyard, TRR Pipeline, TRR Pipeline Road, (maintenance)	Potentially Significant	Mitigation Measure Noise-1a: DWR and Reclamation Shall Include in the Construction and Maintenance Contracts Specifications to Reduce Noise Levels	Less than Significant
Impact Noise-4: Result in a Substantial Temporary or Periodic Increase in Ambient Noise Levels in the Project Vicinity Above Levels Existing without the Project	Road Relocations and South Bridge, TRR, GCID Canal Connection to the TRR, TRR Pumping/Generating Plant, TRR Electrical Switchyard, TRR Pipeline, TRR Pipeline Road, Delevan Pipeline, Delevan Transmission Line, (construction)	Significant	Mitigation Measure Noise-1a: DWR and Reclamation Shall Include in the Construction and Maintenance Contracts Specifications to Reduce Noise Levels	Less than Significant
	GCID Canal Facilities Modifications, (construction)	Potentially Significant	Mitigation Measure Noise-1a: DWR and Reclamation Shall Include in the Construction and Maintenance Contracts Specifications to Reduce Noise Levels	Less than Significant
	Project Buffer (maintenance)	Potentially Significant	Mitigation Measure Noise-1a: DWR and Reclamation Shall Include in the Construction and Maintenance Contracts Specifications to Reduce Noise Levels	Less than Significant

LOS = Level of Significance

**PRELIMINARY – SUBJECT TO CHANGE**

### ***Mitigation Measure Noise-1a: DWR and Reclamation Shall Include in the Construction and Maintenance Contracts Specifications to Reduce Noise Levels***

DWR and Reclamation shall include in both the construction and maintenance contracts the specifications indicating the requirements listed below. DWR's and Reclamation's intent is that all Project construction noise-related impacts at noise-sensitive receptor property boundary lines be minimized or eliminated completely to the extent feasible, and/or that construction noise levels at noise-sensitive receptor property boundary lines not exceed 60 dBA. The construction contractor may propose other methods to sufficiently reduce construction noise levels if it can be demonstrated that those methods are implementable and suitable for the particular location and situation:

- **Local requirements.** Project construction and maintenance activities shall follow local requirements to the extent possible.
- **Portable barriers.** Portable barriers shall be used to shield noise from compressors and other small stationary equipment used during Project construction and/or maintenance if the construction or maintenance activity occurs near a residence.
- **Equipment.** Quiet equipment (for example, equipment that incorporates noise-control elements into the design; compressors can be quiet models) shall be used during Project construction and/or maintenance whenever possible. Preventive maintenance on equipment, including practicable methods and devices to control, prevent, and minimize noise, shall be performed on a regular basis. To the extent feasible, portable and stationary equipment shall be located, stored, and maintained as far as possible from nearby residents.
- **Exhaust.** Equipment exhaust stacks and vents shall be directed away from residential buildings.
- **Truck traffic routing.** Project construction and/or maintenance truck traffic shall be routed away from noise-sensitive areas where feasible. Truck companies that would transport Project construction equipment and/or materials shall be informed that air braking along haul routes where there are residences shall be prohibited.
- **Construction activity scheduling.** To the extent feasible, Project construction activities shall be scheduled so that the activities that are the noisiest occur when ambient noise is also at its peak.
- **Residential notification.** DWR and Reclamation shall notify residents near the Project facility site(s) of the timeframe for Project construction and maintenance activities. In addition, DWR and Reclamation shall notify residents near the Project facility site(s) if nighttime Project construction and/or transportation/delivery of construction vehicles, equipment, or materials is necessary. Such notification would occur prior to such activities occurring.
- **Addressing noise complaints.** If complaints from residents that are located near Project facility locations are received due to nighttime Project construction activities, the construction contractor shall monitor construction noise levels at the property line of the affected residence(s). If the construction noise exceeds the applicable noise standard, the responsible construction activity shall cease until feasible measures are implemented to reduce nighttime noise levels.

### ***Mitigation Measure Noise-1b: Design Facilities to Incorporate Noise Mitigation***

During Project design, all facilities shall be designed to incorporate noise-reducing features to comply with applicable noise regulations and/or guidelines. Noise-reducing features could include, but are not

limited to, acoustically rated wall, ceiling, and door assemblies, and silenced building ventilation; and acoustical treatments on above-ground piping and valving.

***Mitigation Measure Noise-2: Develop and Implement a Vibration Monitoring Plan***

During Project design, a vibration monitoring plan shall be prepared for construction activities that would require pile driving or excavation. The plan shall be implemented during Project construction to ensure that no vibration-related damage is caused by Project-related construction activities.

Implementation of **Mitigation Measures Noise-1a, Noise-1b, and Noise-2** would reduce the level of significance of Project impacts to noise to **less than significant**.

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