DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE

REGIONAL SAN BIOGENERATION FACILITY PROJECT

State Clearinghouse No. 2021050080

Prepared for

REGIONALSAN

Sacramento Regional County
Sanitation District

March 2023

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LIST OF ABBREVIATIONS

°C	degrees Celsius
°F	degrees Fahrenheit
AB	Assembly Bill
AMM	avoidance and minimization measure
AQAP	air quality attainment plans
AR4	Fourth Assessment Report
Board	Regional San Board of Directors
B.P.	before present
BACT	Best Available Control Technology
BMP	Best Management Practices
CAA	Clean Air Act
CAAA	Clean Air Act Amendments of 1990
CAAQS	California Ambient Air Quality Standards
CAL FIRE	California Department of Forestry and Fire Protection
CalEEMod	California Emissions Estimator Model
CAP	criteria air pollutants
CARB	California Air Resources Board
CBC	California Building Code
CCAA	California Clean Air Act
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CH_4	Methane
CHP	combined heat and power
CNDDB	California Natural Diversity Database
CNG	compressed natural gas
CO	carbon monoxide
CO_2	carbon dioxide
Cogen	Cogeneration
County	Sacramento County
CPP	Cosumnes Power Plant
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank

CVFA	Central Valley Financing Authority
CWA	federal Clean Water Act
dB	decibels
dbh	diameter at breast height
Delta	Sacramento River–San Joaquin River Delta
diesel PM	exhaust from diesel engines
Draft EIR	draft environmental impact report
DTSC	Department of Toxic Substances Control
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FHSZ	fire hazard severity zone
FHWA	Federal Highway Administration's
FR	Federal Register
General Plan EIR	Sacramento County General Plan update
GHG	greenhouse gas
GWP	global warming potential
HAP	hazardous air pollutants
I-5	Interstate 5
IPCC	Intergovernmental Panel on Climate Change
LRA	Local Responsibility Area
LCFS	Low Carbon Fuel Standard
MBTA	Migratory Bird Treaty Act
mgd	million gallons per day
MLD	most likely descendant
MMBtu/hr	million British Thermal Units per hour
MPO	metropolitan planning organizations
$MTCO_2e$/year	metric tons of carbon dioxide equivalent per year
MW	megawatts
MWh	megawatt hours
N_2O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission

NCCP	Natural Community Conservation Plan
NCIC	North Central Information Center
NO	nitric oxide
NO_2	nitrogen dioxide
NOP	Notice of Preparation
NO_X	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NRHP	National Register of Historic Places
OEHHA	Office of Environmental Health Hazard Assessment
ozone	photochemical smog
PM	particulate matter
PM_{10}	particulate matter with an aerodynamic diameter of 10 microns or less
$PM_{2.5}$	fine particulate matter with aerodynamic diameter of 2.5 micrometers or less
PRC	Public Resources Code
project	Regional San BioGeneration Facility Project
RCP	Representative Concentration Pathway
Regional San	Sacramento Regional County Sanitation District
RFP	Request for Proposal
RFQ	Request for Qualifications
RIN	Renewable Identification Number
RMP/PSM	Risk Management Plan and Process Safety Management
ROG	reactive organic gases
RPS	Renewable Portfolio Standard
RWQCB	Regional Water Quality Control Board
SACOG	Sacramento Area Council of Governments
SB	Senate Bill
SCS	Sustainable Communities Strategy
SIP	state implementation plan
SLCP	Short-Lived Climate Pollutant
SLF	Sacred Lands File
SMAQMD	Sacramento Metropolitan Air Quality Control District
SMUD	Sacramento Municipal Utility District
SO_2	sulfur dioxide
SR	State Route
SRWTP	Sacramento Regional Wastewater Treatment Plant
SSHCP	South Sacramento Habitat Conservation Plan
SVAB	Sacramento Valley Air Basin

SWPPP	stormwater pollution prevention plan
SWRCB	State Water Resources Control Board's
TAC	Toxic air contaminants
T-BACT	Toxic Best Available Control Technology
TMP	traffic management plan
UAIC	United Auburn Indian Community
USB	Urban Services Boundary
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VMT	vehicle miles traveled
WEAP	Worker Environmental Awareness Program
WPCP	Water Pollution Control Plan
ZEV	zero-emission vehicles

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EXECUTIVE SUMMARY

ES.1 INTRODUCTION

This summary is provided in accordance with the California Environmental Quality Act (CEQA) Guidelines Section 15123. As stated in the State CEQA Guidelines Section 15123(a), "[a]n environmental impact report (EIR) shall contain a brief summary of the proposed actions and its consequences. The language of the summary should be as clear and simple as reasonably practical." As required by the Guidelines, this chapter includes (1) a summary description of the proposed Sacramento Regional County Sanitation District (Regional San) BioGeneration Facility Project, (2) a synopsis of environmental impacts and recommended mitigation measures (Table ES-1), (3) identification of the alternatives evaluated and of the environmentally superior alternative, and (4) a discussion of the areas of controversy associated with the project.

ES.2 SUMMARY DESCRIPTION OF THE PROJECT

Regional San proposes to construct and operate a biogas cogeneration facility within the existing Sacramento Regional Wastewater Treatment Plant (SRWTP) site. The project would beneficially use biogas produced by the SRWTP's anaerobic digesters to generate heat and power.

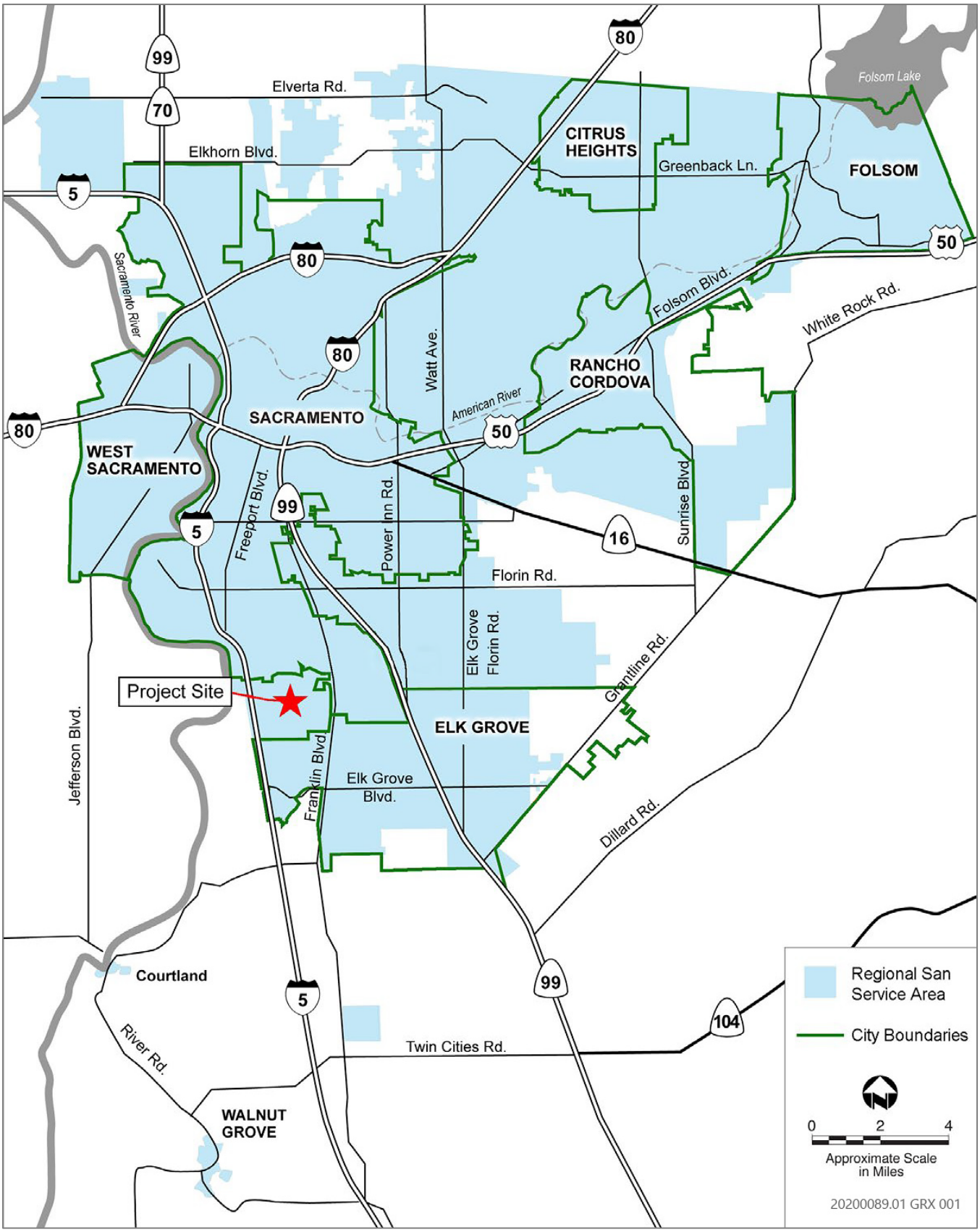
ES.2.1 Project Location

The SRWTP is located at 8521 Laguna Station Road in Elk Grove and is surrounded by approximately 2,150 acres of open space owned by Regional San and known as the Bufferlands (Figure ES-1). The entire SRWTP site and Bufferlands are located north of Laguna Boulevard and lie predominantly within the unincorporated area of Sacramento County, between Franklin Boulevard and Interstate 5 (I-5). The biogeneration project area (area of disturbance) would be located within the SRWTP site in a previously disturbed area north of the existing digesters. The project area is bordered by Digesters Way/Oregon Trail to the south and Septage Way to the north. The staging area would be immediately east of the proposed biogeneration facility site (Figure ES-2).

ES.2.2 Background and Need for the Project

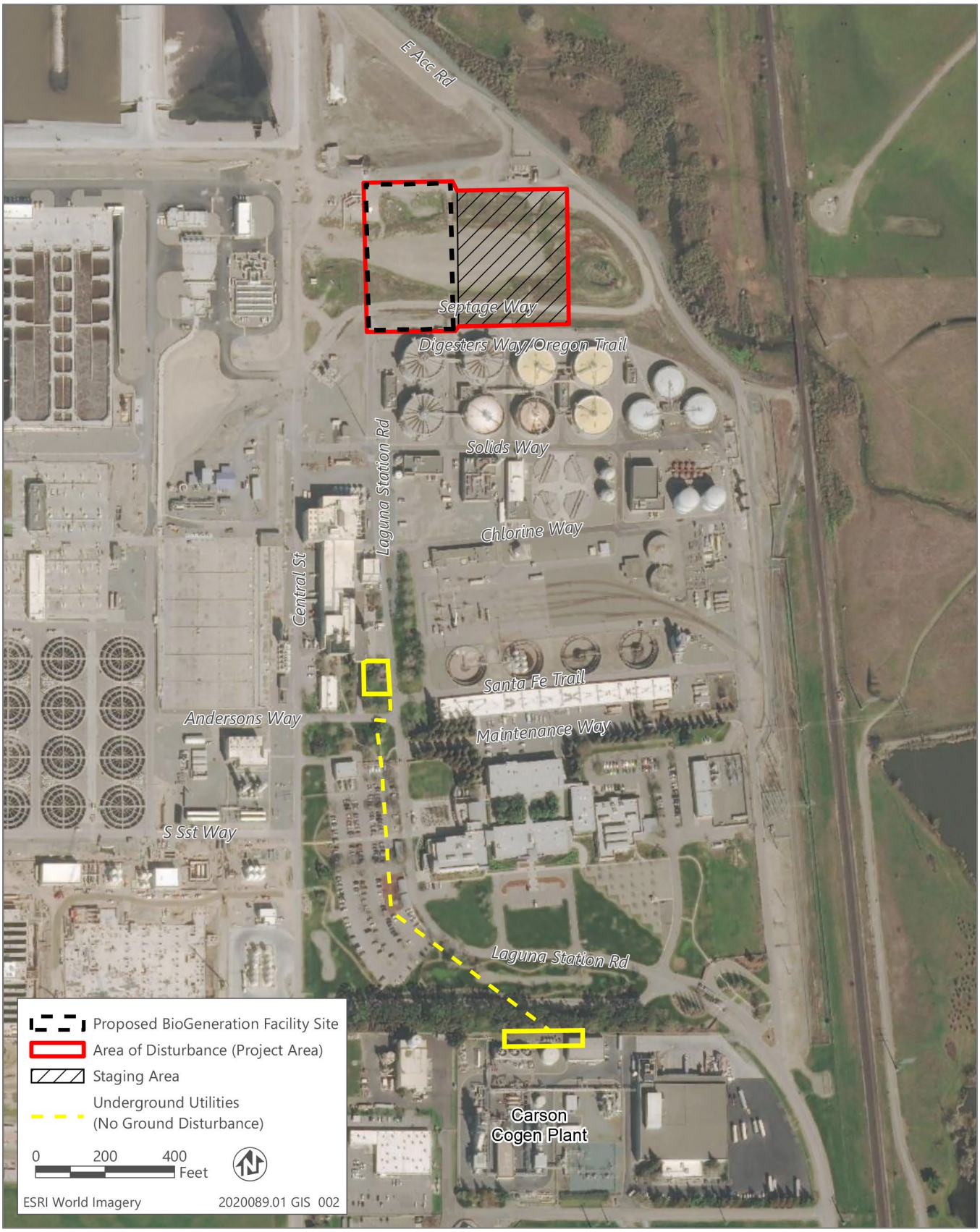
Regional San owns and operates a regional wastewater conveyance system (sewer lines and interceptors) and the SRWTP, and provides wastewater conveyance and treatment services to residential, industrial, and commercial customers throughout unincorporated Sacramento County; the cities of Citrus Heights, Elk Grove, Folsom, Rancho Cordova, Sacramento, and West Sacramento; and the communities of Courtland and Walnut Grove. The wastewater treatment process generates a variety of solids including primary sludge, grit, screenings (i.e., large debris), return activated sludge (activated sludge returned to the beginning of the secondary process), and waste activated sludge (sludge to be disposed of). Regional San feeds blended primary sludge and thickened waste activated sludge to six primary anaerobic digesters and two blending digesters. Anaerobic digestion produces biogas, which is a methane-rich, renewable byproduct of the solids digestion process that can be used as a renewable fuel.

Regional San has been in partnership with Sacramento Municipal Utility District (SMUD) for nearly 30 years. Under this partnership, Regional San delivers renewable biogas generated by the SRWTP wastewater treatment process to SMUD in exchange for reliable utility and backup power, steam for digester heating, and revenue according to the terms of the existing Commodity Agreement. The original driver for the agreement was the co-location of SMUD's Carson Cogeneration (Cogen) Plant on the SRWTP site, where biogas helped fuel the Carson Cogen plant, and steam from the Carson Cogen plant could be returned for digester heating. However, the benefits of co-location are no longer a driver for this agreement because SMUD now sends the biogas offsite to the Consumnes Power Plant (CPP), to generate electricity which is claimed as credits towards its obligations under the Renewable Portfolio Standard (RPS) Program.



Source: adapted by Ascent in 2022

Figure ES-1 Regional Location



Source: adapted by Ascent in 2022

Figure ES-2 Project Location

With the Commodity Agreement expiring in 2025, Regional San is pursuing the project described below as an alternative use for its biogas. Use of biogas at the SRWTP site rather than off-site at SMUD's facilities would increase efficiencies and reduce costs for Regional San. Operation of a biogas conditioning system on-site would allow Regional San to schedule and stagger maintenance of the system such that downtime would be minimized. Minimizing downtime would eliminate current surplus flaring related to maintenance and unforeseeable overpressure events. Construction of an on-site biogas system would also allow decommissioning of three boilers currently operated by Regional San under the Sacramento Metropolitan Air Quality Management District (SMAQMD) permits, thereby eliminating emissions.

ES.2.3 Project Objectives

The goal of the project is to design and construct a biogas cogeneration facility before the Commodity Agreement expires in October 2025 that meets the following objectives:

- make the best use of biogas (highest economic and environmental value, greatest overall efficiency);
- minimize operations and maintenance costs;
- integrate into the existing SRWTP facilities;
- reduce emissions associated with use of biogas venting and flaring compared to existing conditions; and
- protect the environment through responsible stewardship of natural resources.

ES.2.4 Characteristics of the Project

The project would include construction and operation of a new cogeneration engine system to use biogas onsite to produce electricity and heat for the SRWTP. The biogas cogeneration system would have several major interfaces with existing SRWTP systems including the following:

- gas management system,
- digester heating system,
- electrical power distribution system,
- plant computer control system, and
- site utilities.

The project would include the following components:

- up to six internal combustion engine generators,
- engine exhaust treatment (oxidation catalyst and selective catalytic reduction),
- a biogas conditioning system (as part of the gas management system),
- hot water boiler (standby), and
- a new building.

The project would also result in abandonment and demolition of existing utilities connecting the SRWTP and the Carson Cogen Plant. Three pipelines used for digester gas, condensate, and steam would be abandoned. Implementation of the project would also result in the curtailment of stationary sources operated by Regional San under existing conditions, including digester gas flaring by SRWTP's enclosed flares (ground flares) and waste gas burners. In addition, three boilers used to generate steam would be eliminated. The project would eliminate surplus flaring related to maintenance and unforeseeable overpressure events because this project would allow Regional San to operate its own digester gas conditioning system and schedule and stagger maintenance of the Combined Heat and Power engines such that downtime would be minimized. Three boilers currently operated by Regional San would be decommissioned as part of the project.

Construction of the project would last between 18 and 24 months and is anticipated to begin in 2024. In total, up to 5.6 acres would be disturbed by project construction and staging. Construction would require between 15 and 20 construction workers per day during construction of the new facilities. Once construction is complete, four construction workers per day for up to 2 weeks would be required for abandonment/demolition of the existing utilities. Typical work hours would be Monday through Friday from 7:00 a.m. to 7:00 p.m. (construction noise is exempt from noise ordinances between 6:00 a.m. and 8:00 p.m. on weekdays within Sacramento County). No nighttime work is anticipated. Ingress and egress for construction traffic would be via Laguna Boulevard to Dwight Road then to Central Street, which connects to Septage Way.

The project is expected to become operational in 2025. Operation of the project would not change the operating hours at the existing SRWTP, which operates continuously 24 hours per day, every day. Operation of the project would require up to 10 additional full-time employees to operate and maintain the new facilities.

ES.2.5 Potential Approvals and Permits Required

Regional San is the lead agency, as defined by CEQA, for this EIR and has the principal responsibility for ensuring that the requirements of CEQA have been met. After the EIR public review process is complete, the Regional San Board of Directors (Board) is the party responsible for certifying that the EIR adequately evaluates the environmental impacts of the project. The Board has the authority to approve, approve with modifications, or reject the proposed Regional San BioGeneration Facility Project.

The project would require an Authority to Construct Permit and Permit to Operate from SMAQMD (for devices that emit air pollutants).

Stormwater Pollution Prevention would be subject to a Water Pollution Control Plan and runoff would be contained within the SRWTP. If dewatering is required during construction, the project would comply with the General Order for Dewatering. It is not expected that the project would require a National Pollutant Discharge Elimination System construction stormwater permit (Notice of Intent to proceed under General Construction Permit) for disturbance of more than 1 acre administered by the State Water Resources Control Board because the project is within SRWTP's ring levee and existing process area.

ES.3 ENVIRONMENTAL IMPACTS AND RECOMMENDED MITIGATION MEASURES

Table ES-1, presented at the end of this chapter, provides a summary of the environmental impacts for the proposed Regional San BioGeneration Facility Project. The table provides the level of significance of the impact before mitigation, recommended mitigation measures, and the level of significance of the impact after implementation of the mitigation measures.

As shown in Table ES-1, all of the impacts associated with the project would be less than significant after implementation of mitigation measures.

ES.4 ALTERNATIVES TO THE PROPOSED PROJECT

The following provides brief descriptions of the alternatives evaluated in this Draft EIR. Table ES-2 presents a comparison of the environmental impacts between the alternatives and the proposed project.

- Alternative 1: No Project – No Action Alternative assumes the proposed biogeneration facility would not be constructed. The project area would remain in its current condition and biogas generated at the SRWTP would be used to fuel boilers, with the rest being flared.
- Alternative 2: No Project – SMUD Agreement Extension Alternative assumes the biogeneration facility would not be constructed. The project area would remain in its current condition, and Regional San would continue to

deliver renewable biogas generated at the SRWTP to SMUD in exchange for reliable utility and backup power, steam for digester heating, and revenue. The existing Commodity Agreement would be extended beyond 2025 under this alternative.

- Alternative 3: Trigeneration Alternative would include use of fuel cells to convert biogas from the SRWTP to heat and power. Heat and power would be used onsite for the SRWTP. In addition, this alternative would be designed to allow for generation of renewable hydrogen in the future.

For a more thorough discussion of project alternatives, see Chapter 5, "Alternatives." Table ES-2 presents a comparison of the environmental effects of each alternative relative to the proposed project.

ES.4.1 Environmentally Superior Alternative

CEQA requires identification of an environmentally superior alternative in an EIR but gives no definition for the term (State CEQA Guidelines Section 15126.6(e)). For the purposes of this EIR, the environmentally superior alternative is the alternative that would result in the fewest potentially significant impacts while achieving most of the basic project objectives to the greatest extent. Table ES-2 presents a comparison of the environmental effects of each alternative relative to the proposed project.

As illustrated in Table ES-2, Alternatives 1 and 2 would be marginally environmentally superior with respect to biological and cultural resources, even though these impacts are fully mitigated with the project. However, impacts related to air quality and GHG emissions would be greater for Alternatives 1 and 2. Alternatives 1 and 2 would avoid or reduce some mitigated (to less-than-significant) impacts associated with the project but would result in greater impacts for other resource areas. Alternative 3 would reduce impacts associated air quality compared to the project but would result in greater impacts related to GHG emissions. With each alternative, there would be environmental tradeoffs; that is, impacts to certain resource areas from an alternative would increase while others would decrease relative to the proposed project. In light of these tradeoffs among the alternatives and the proposed project, none of the alternatives clearly stands out as environmentally superior. Identification of the environmentally superior alternative is, therefore, not an objective choice based on quantifiable criteria, but rather, an exercise of discretion in balancing environmental priorities among potential impacts in relation to the extent to which the alternative would meet the project objectives.

ES.5 AREAS OF CONTROVERSY AND ISSUES TO BE RESOLVED

In accordance with Public Resources Code Section 21092 and California Code of Regulations Section 15082, Regional San issued a notice of preparation (NOP) and Initial Study for the proposed Regional San BioGeneration Facility Project on August 16, 2021, to inform agencies and the general public that an EIR was being prepared and to invite comments on the scope and content of the document. The NOP and responses to the NOP are included in Appendix A of this Draft EIR. Based on the comments received during the NOP comment period, the major areas of controversy associated with the project include:

- potential air quality impacts (during construction and operation) and mitigation measures,
- potential GHG emissions,
- alternatives, and
- potential impacts to biological resources and mitigation measures.

Areas of controversy that are within the scope of CEQA are addressed in this Draft EIR. Issues that are outside the scope of CEQA are not evaluated in this Draft EIR; however, Regional San will continue to respond to these issues through the project planning process.

All of the substantive environmental issues raised in the NOP comment letters have been addressed or otherwise considered during preparation of this Draft EIR.

Table ES-1 Summary of Impacts and Mitigation Measures

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Air Quality			
Impact 3.1-1: Conflict with or Obstruct Implementation of an Applicable Air Quality Plan Implementation of the project would not increase projected growth beyond the County's 2030 General Plan, which considered the growth in the unincorporated County in which the project is located. Because the 2030 General Plan was used to inform the projected growth in the air quality attainment plans (AQAPs), the project would be consistent with the AQAPs. The project is consistent with the AQAP and this impact would be less than significant.	LTS	No mitigation is required for this impact.	LTS
Impact 3.1-2: Cause Construction-Generated Criteria Air Pollutant or Precursor Emissions to Exceed SMAQMD-Recommended Thresholds Construction of the project would result in modest emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$. Additionally, SMAQMD Basic Construction Emission Control Practices would be implemented during construction of the project, which would effectively control emissions levels. Therefore, construction-related emissions from the project would not exceed SMAQMD's thresholds of significance. This impact would be less than significant.	LTS	No mitigation is required for this impact.	LTS
Impact 3.1-3: Result in a Net Increase in Long-Term Operational Criteria Air Pollutant and Precursor Emissions that Exceed SMAQMD-Recommended Thresholds Implementation of the project would result in long-term operational emissions that are not expected to exceed the SMAQMD's thresholds of significance. Thus, operation-generated emissions would not contribute substantially to the nonattainment status of SVAB. Additionally, examination of the project using SMAQMD's Minor Project Health Effects Tool indicates that the project would not result in sizeable health effects in the region. This impact would be less than significant.	LTS	No mitigation is required for this impact.	LTS
Impact 3.1-4: Expose Sensitive Receptors to Substantial Pollutant Concentrations Both construction related and operational emissions of TACs associated with proposed project would occur more than 4,000 feet from the nearest sensitive receptor. In addition, the project would be a new permitted emission unit and would be required to meet SMAQMD's permitting requirements, including the	LTS	No mitigation is required for this impact.	LTS

NI = No impact LTS = Less than significant PS = Potentially significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
application of T-BACT These requirements are identical to SMAQMD's thresholds of significance for TACs (i.e., 10 chances in a million for cancer risk and a hazard index greater than 1 at any off-site receptor). Thus, the project would not result in exposure of existing receptors to substantial TAC concentrations from construction or operational emissions. This impact would be less than significant.			
Impact 3.1-5: Create Objectionable Odors Affecting a Substantial Number of People The project would result in minimal construction-related odors and would not introduce new odor sources during operations and, therefore, would not result in an odor impact. As a result, potential exposure of sensitive receptors to objectionable odors would be less than significant.	LTS	No mitigation is required for this impact.	LTS
Biological Resources			
Impact 3.2-1: Result in Disturbance to or Loss of Special-Status Wildlife Species and Habitat Project implementation could lead to potential loss of bird nests due to disturbance from construction activities. Loss of nests could include nest abandonment, failure, and/or mortality of chicks or eggs. Therefore, this impact is potentially significant.	PS	**Mitigation Measure 3.2-1a: Avoid Disturbance of Swainson's Hawk, Loggerhead Shrike, and Other Raptor Nests** Regional San will implement the following measures that are consistent with the AMMs in the SSHCP: ▶ For construction activities that would occur within 0.25 mile of a known or likely Swainson's hawk nest site (identified based on previous years' use by Swainson's hawk), Regional San will initiate construction activities before the nest initiation phase (i.e., before March 1), if possible. Depending on the timing, regularity, and intensity of construction activity, construction in the area prior to nest initiation may discourage a Swainson's hawk pair from using that site and eliminate the need to implement further nest-protection measures, such as buffers and limited construction operating periods around active nests. Other measures to deter establishment of nests (e.g., reflective striping or decoys) may be used prior to the breeding season in areas planned for active construction. However, if breeding raptors establish an active nest site, as evidenced by nest building, egg laying, incubation, or other nesting behavior, near the construction area, they will not be harassed or deterred from continuing with their normal breeding activities. ▶ For project activities, that begin between March 1 and September 15, preconstruction surveys for Swainson's hawk and other nesting raptors (including loggerhead shrike) will be conducted to identify active nests on and within 0.25 mile of the project area. Two surveys will be conducted before the beginning of any construction activities between March 1 and September 15. The	LTS

NI = No impact LTS = Less than significant PS = Potentially significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		first survey will be conducted within 30 days prior to ground disturbance activities, with a follow up surveys 3 days prior to the start of ground disturbance activities. ▶ If active Swainson's hawk, or other covered raptor species nest(s) are found within 0.25 mile of any project-related activity, Regional San will establish a 0.25-mile no-disturbance buffer around the active nest until the young have fledged. ▶ If active nests of other raptors (other than Swainson's hawk, or other covered raptor species) are found within 0.25 mile of any project-related activity, Regional San will establish a 0.25-mile no-disturbance buffer around the active nest until the young have fledged. ▶ If Swainson's hawks are nesting within 0.25 mile of any project-related activity, then a qualified biologist experienced with Swainson's hawk behavior will monitor the nest throughout the nesting season and to determine when the young have fledged. The qualified biologist can reduce the disturbance buffer as long as reducing the buffer would not likely result in nest abandonment. CDFW guidelines recommend implementation of 0.25-mile-wide buffer for Swainson's hawk and 0.25 mile for other raptors, but the size of the buffer may be adjusted if a qualified biologist and Regional San, in consultation with CDFW, determine that such an adjustment would not be likely to adversely affect the nest. The qualified biologist will be on site daily while construction-related activities are taking place within the buffer. If nesting Swainson's hawks begin to exhibit agitated behavior, such as defensive flights at intruders, getting up from a brooding position, or flying off the nest, the qualified biologist will have the authority to shut down construction activities. If agitated behavior is exhibited, the biologist, and Regional San will meet to determine the best course of action to avoid nest abandonment or take of individuals and will consult CDFW, if necessary, to identify appropriate avoidance measures. The qualified biologist will also train construction personnel on the required avoidance procedures, buffer zones, and protocols in the event that a Swainson's hawk flies into the active construction zone. ▶ Prior to construction activities, a qualified biologist will develop training materials for and conduct a mandatory Worker Environmental Awareness Program (WEAP) for all construction personnel who will have the potential to encounter any biological resources. The training materials will cover the following: 1) a review of the project boundaries; 2) all special-status species that may be present, their habitat, and identification; 3) the specific environmental	

NI = No impact LTS = Less than significant PS = Potentially significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		commitments and mitigation measures that will be incorporated into the construction effort; 4) the general provisions and protections afforded by USFWS and CDFW; and 5) the proper procedures if a special-status species is encountered within the project area. An instructional pamphlet will be included with the WEAP. At the completion of the WEAP, the qualified biologist will identify a responsible party on-site (generally the project foreman) who will ensure that new construction members receive and review the pamphlet information. This responsible party will also be the primary point of contact if special-status species are found on site and the presence of the qualified biologist is required. ▶ Orange construction fencing will be installed to ensure that ground disturbance does not extend beyond the allowed construction footprint (i.e., the limit of project construction plus equipment staging areas and access roads). This fencing will remain in place until project completion. Regional San or its contractor will water active construction areas regularly, including the staging area, if warranted, to avoid or minimize impacts from construction dust on adjacent vegetation and wildlife habitats. No surface water will be used from aquatic land covers; water will be obtained from a municipal source or existing groundwater well. **Mitigation Measure 3.2-1b: Avoid Disturbance of Burrowing Owl Nests** Regional San will implement the following measures that are consistent with AMMs included in the SSHCP. Surveys for burrowing owl will be required for both the breeding and non-breeding season. A qualified biologist will survey available habitat within 250 feet of the project area prior to construction and map all burrows, noting any burrows that may be occupied. Occupied burrows are often (but not always) indicated by tracks, feathers, eggshell fragments, pellets, prey remains, and/or excrement. Surveying and mapping will be conducted by the qualified biologist while walking transects throughout the entire project area and all accessible areas within a 250-foot radius from the project area. The centerline of these transects will be no more than 50 feet apart and will vary in width to account for changes in terrain and vegetation that can preclude complete visual coverage of the area. For example, in hilly terrain with patches of tall grass, transects will be closer together, and in open areas with little vegetation, they can be 50 feet apart. If suitable habitat is identified during the initial survey, and if the project does not fully avoid the habitat, pre-construction surveys will be required. Suitable habitat is comprised of open, dry annual or	

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Burrows (artificial and natural) are also an essential component of suitable burrowing owl habitat. Burrowing owl habitat is fully avoided if project-related activities do not impinge on a 250-foot buffer established by the qualified biologist around suitable burrows. Prior to any ground disturbance, a qualified biologist will conduct pre-construction surveys in all areas that were identified as suitable habitat if project activities are closer than the 250-foot buffer to suitable burrows. The purpose of the pre-construction surveys is to document the presence or absence of burrowing owls within the project area, particularly in areas within 250 feet of construction activities. To maximize the likelihood of detecting owls, the pre-construction survey will last a minimum of 3 hours. The survey will begin 1 hour before sunrise and continue until 2 hours after sunrise (3 hours total) or begin 2 hours before sunset and continue until 1 hour after sunset. A minimum of two pre-construction surveys will be conducted (if owls are detected on the first survey, a second survey is not needed). All owls observed will be counted and their location will be mapped. Surveys will conclude no more than 2 calendar days prior to construction. If burrowing owl or evidence of burrowing owl is observed in the project area or within 250 feet of the project area during pre-construction surveys, then the following will occur: ▶ **During Breeding Season**: If the qualified biologist finds evidence of burrowing owl within the project area during the breeding season (February 1 through August 31), all project-related activities will avoid nest sites during the remainder of the breeding season or while the nest remains occupied by adults or young (nest occupation includes individuals or family groups foraging on or near the site following fledging). Avoidance is establishment of a minimum 250-foot buffer zone around nests. Construction and other project-related activities may occur outside of the 250-foot buffer zone. Construction and other project-related activities may be allowed inside of the 250-foot non-disturbance buffer during the breeding season if the nest is not disturbed, and Regional San develops an avoidance, minimization, and monitoring plan that is approved by CDFW prior to project construction based on the following criteria: ▪ CDFW approves the avoidance and minimization plan provided by Regional San.	

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		▪ A qualified biologist monitors the owls for at least 3 days prior to construction to determine baseline nesting and foraging behavior (i.e., behavior without construction). ▪ The same qualified biologist monitors the owls during construction and finds no change in owl nesting and foraging behavior in response to construction activities. ▪ If there is any change in owl nesting and foraging behavior as a result of construction activities, the qualified biologist will have the authority to halt activities within the 250-foot buffer. Construction cannot resume within the 250-foot buffer until any owls present are no longer affected by nearby construction activities, and with written concurrence from CDFW. ▪ If monitoring by the qualified biologist indicates that the nest is abandoned prior to the end of nesting season and the burrow is no longer in use, the non-disturbance buffer zone may be removed if approved by CDFW. The qualified biologist will excavate the burrow in accordance with the latest CDFW guidelines for burrowing owl to prevent reoccupation after receiving approval from CDFW. ▸ **During Non-Breeding Season:** During the non-breeding season (September 1 through January 31), the qualified biologist will establish a minimum 250-foot non-disturbance buffer around occupied burrows. Construction activities outside of this 250-foot buffer will be allowed. Construction activities within the non-disturbance buffer will be allowed if the following criteria are met to prevent owls from abandoning over-wintering sites: ▪ A qualified biologist monitors the owls for at least 3 days prior to construction to determine baseline foraging behavior (i.e., behavior without construction). ▪ The same qualified biologist monitors the owls during construction and finds no change in owl foraging behavior in response to construction activities. ▪ If there is any change in owl foraging behavior as a result of construction activities, the qualified biologist will have authority to halt activities within the 250-foot buffer. ▪ If the owls are gone for at least 1 week Regional San may request approval from CDFW that a qualified biologist excavate usable burrows and install one-way exclusionary devices to prevent owls from re-occupying the site.	

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		After all usable burrows are excavated, the buffer zone will be removed, and construction may continue. ▪ Monitoring must continue as described above for the non-breeding season as long as the burrow remains active. ▪ During construction of the proposed project, 250-foot construction buffer zones will be established and maintained around any occupied burrow. A qualified biologist will monitor the site to ensure that buffers are enforced, and owls are not disturbed. The qualified biologist will also train construction personnel on avoidance procedures, buffer zones, and protocols in the event that a burrowing owl flies into or is found in the active construction zone. ▪ Passive relocation is not allowed without the written approval of CDFW. Passive owl relocation may be allowed on a case-by-case basis during the non-breeding season (September 1 through January 31) with the written approval of CDFW, if the other measures described in this mitigation measure preclude work from continuing. Passive relocation must be done in accordance with the latest CDFW guidelines for burrowing owl. Passive relocation will only be proposed if the burrow needing to be removed or with the potential to collapse from construction activities is the result of the proposed project. If passive relocation is approved by CDFW, a qualified biologist can passively exclude owls from their burrows during the non-breeding season by installing one-way doors in burrow entrances. These doors will be in place for 48 hours to ensure that owls have left the burrow, and then the biologist will excavate the burrow to prevent reoccupation. Burrows will be excavated using hand tools only. During excavation, an escape route will be maintained at all times. This may include inserting an artificial structure into the burrow to avoid having materials collapse into the burrow and trap owls inside. **Mitigation Measure 3.2-1c: Avoid Disturbance of Tricolored Blackbird or Common Native Bird Nests or Foraging Habitat** Regional San will implement the following measures that are consistent with AMMs included in the SSHCP: ▶ A qualified biologist will conduct a field investigation to determine if existing or potential tricolored blackbird nesting or foraging sites are present in adjacent areas within 500 feet of the project area. Potential tricolored blackbird nest sites are often associated with freshwater marsh and seasonal wetlands, or in thickets	

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		of willow, blackberry, wild rose, thistle, and other thorny vegetation. Foraging habitat includes annual grasslands, wet and dry vernal pools and other seasonal wetlands, agricultural fields (such as large tracts of alfalfa and pastures with continuous haying schedules and recently tilled fields), cattle feedlots, and dairies. The qualified biologist will map all existing or potential nesting or foraging sites. Nesting sites will also be noted on construction maps. Pre-construction surveys will be required to determine if active nests of tricolored blackbird are present within 500 feet of the project area, if potential nesting sites are found during field investigations and construction activities will occur during the breeding season (March 1 through September 15). A qualified biologist will conduct preconstruction surveys within 30 days and again within 3 days of ground-disturbing activities in areas of potential nesting habitat within 500 feet of the proposed project area to determine the presence of nesting tricolored blackbird. If a tricolored blackbird nest colony is present, then the following measures shall be implemented: ▶ If active nests are found within 500 feet of any project-related activity, Regional San will establish a temporary no-disturbance buffer, the size of which has been determined by a qualified biologist around the active nest site until the young have fledged. ▶ If nesting tricolored blackbirds are present within 500 feet of any project-related activity, then a qualified biologist will monitor the nest colony throughout the nesting season and to determine when the young have fledged. The qualified biologist will be on site daily while construction-related activities are taking place near the no-disturbance buffer. Work within the nest disturbance buffer will not be permitted. If the qualified biologist determines that tricolored blackbirds are exhibiting agitated behavior, construction will halt until the buffer size is increased to a distance necessary to prevent harm or harassment of nesting tricolored blackbirds. If the biologist determines that the colonies are at risk, a meeting with Regional San will be held to determine the best course of action to avoid nest abandonment or take of individuals. CDFW will be consulted, if necessary, to identify appropriate avoidance measures for the tricolored blackbird nesting colony. The qualified biologist will also train construction personnel on the required avoidance procedures, buffer zones, and protocols in the event that a tricolored blackbird flies into an active construction zone (i.e., outside the buffer zone).	

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		A pre-construction survey will be required to determine if active nests of common native birds are present within 100 feet of the project area if construction activities will occur during the breeding season (March 1 through September 15). A qualified biologist will conduct pre-construction surveys within 14 days of ground-disturbing activities. If active nests of common native bird species are found, Regional San will establish a temporary no-disturbance buffer; the size of which will be determined by a qualified biologist. Factors to be considered for determining buffer size will include presence of natural buffers provided by vegetation or topography, nest height above ground, baseline levels of noise and human activity, species sensitivity, and proposed project construction activities. Generally, buffer size for common native bird species will be at least 20 feet. The size of the buffer may be adjusted if a qualified biologist, determines that such an adjustment would not be likely to adversely affect the nest.	
Impact 3.2-2: Interfere with Wildlife Movement Corridors or Impede the Use of Wildlife Nurseries The project area is within the core facility area of the SRWTP, which is surrounded by the Bufferlands. The project area does not currently support native vegetation that would function as a wildlife nursery site. The project area is within a wildlife movement corridor, as it is located within the Pacific Flyway; however, it is also within the developed portion of the SRWTP. Though project construction activities could adversely affect common migratory birds through disturbance during the breeding season, these impacts would be addressed through implementation of Mitigation Measures 3.2-1a through 3.2-1c. Therefore, the impact to wildlife movement corridors or wildlife nurseries would be less than significant.	LTS	No additional mitigation is required for this impact.	LTS
Impact 3.2-3: Conflict with Local Policies and Ordinances The Sacramento County General Plan, Sacramento County Swainson's Hawk Ordinance, and Sacramento County Tree Preservation Ordinance contain policies that protect biological resources. Although implementation of the project has the potential to result in disturbance for sensitive species, these impacts would be avoided or reduced to a less-than-significant level through implementation of Mitigation Measures 3.2-1a through 3.2-1c. Therefore, potential conflicts with local policies and ordinances would be less than significant.	LTS	No additional mitigation is required for this impact.	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.2-4: Conflict with South Sacramento Habitat Conservation Plan The project area is within the covered area of the SSHCP. Take of state or federally listed species as a result of the project is not anticipated and the proposed project is not seeking coverage under the SSHCP as a Covered Activity. All six special-status wildlife species that may occur in the project area or in the adjacent area during breeding season are covered under the SSHCP. Although potential loss of bird nests may occur due to disturbance from construction activities, the project area is within the Urban Development Area of the SSHCP, and the impacts to covered species are being mitigated according to the AMMs in the SSHCP. Therefore, the project would not conflict with the SSHCP. There would be no impact.	NI	No mitigation is required for this impact.	NI
Cultural and Tribal Cultural Resources			
Impact 3.3-1: Cause a Substantial Adverse Change in the Significance of Unique Archaeological Resources Although the NCIC records search did not reveal any previously identified archaeological resources and the project area has a low sensitivity for buried resources, project-related ground-disturbing activities could result in discovery or damage of yet undiscovered archaeological resources as defined in State CEQA Guidelines Section 15064.5. This would be a potentially significant impact.	PS	**Mitigation Measure 3.3-1: Discoveries of Archaeological Resources** If a prehistoric archeological site (such as any unusual amounts of stone, bone, or shell) or a historic-period archaeological site (such as concentrated deposits of bottles or bricks, amethyst glass, or other historic refuse), is uncovered during grading or other construction activities, all ground-disturbing activity within 100 feet of the discovery will be halted until a qualified archaeologist can assess the significance of the find. Regional San will be notified of the potential find and a qualified archeologist will be retained to investigate its significance. If the find is a prehistoric archeological site, the appropriate Native American group will be notified, and Mitigation Measure 3.3.3-2 will be implemented. Any previously undiscovered resources found during construction will be recorded on appropriate California Department of Parks and Recreation 523 forms and evaluated for significance under all applicable regulatory criteria. If the archaeologist determines that the find does not meet the CRHR standards of significance for cultural resources, construction may proceed. If the find is determined to be significant by the qualified archaeologist (i.e., because the find is determined to constitute either an historical resource or a unique archaeological resource), the archaeologist will work with Regional San to follow accepted professional standards such as further testing for evaluation or data recovery, as necessary. If artifacts are recovered from significant historic archaeological resources, they will be housed at a qualified curation facility. The results of the identification, evaluation, and/or data recovery program for any unanticipated discoveries will be presented in a professional-quality report that details all methods and findings, evaluates the nature and significance of the resources, and analyzes and interprets the results.	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.3-2: Cause a Substantial Adverse Change in the Significance of a Tribal Cultural Resource Although the NAHC SLF was negative and neither UAIC nor Wilton Rancheria identified a tribal cultural resource within the project area, consultation with Wilton Rancheria revealed that the project area is considered culturally sensitive. Therefore, it is possible that yet-undiscovered tribal cultural resources could be encountered or damaged during ground-disturbing construction activities. This impact would be potentially significant.	PS	**Mitigation Measure 3.3-2: Discoveries of Potential Tribal Cultural Resources** If any suspected tribal cultural resources are discovered during ground disturbing construction activities within the project area, including midden soil, artifacts, chipped stone, exotic rock (nonnative), or unusual amounts of baked clay, shell, or bone, all work shall cease within 100 feet of the find. Appropriate tribal representative(s) will be immediately notified and will determine if the find is a tribal cultural resource (pursuant to PRC Section 21074). The tribal representative will make recommendations for further evaluation and treatment, as necessary. Preservation in place is the preferred alternative under CEQA and the tribes' protocols, and every effort must be made to preserve the resources in place, including through project redesign. Culturally appropriate treatment may be, but is not limited to, processing materials for reburial, minimizing handling of cultural objects, leaving objects in place within the landscape, returning objects to a location within the project vicinity where they will not be subject to future impacts. The Tribe does not consider curation of tribal cultural resources to be appropriate or respectful and requests that materials not be permanently curated, unless approved by the Tribe. Treatment that preserves or restores the cultural character and integrity of a tribal cultural resource may include tribal monitoring, culturally appropriate recovery of cultural objects, and reburial of cultural objects or cultural soil.	LTS
Impact 3.3-3: Disturb Human Remains Based on documentary research, no evidence suggests that any prehistoric or historic-period marked or un-marked human interments are present within or in the immediate vicinity of the project area. However, ground-disturbing construction activities could uncover previously unknown human remains. Compliance with California Health and Safety Code Section 7050.5 and California Public Resources Code Section 5097 would make this impact less than significant.	LTS	No mitigation is required for this impact.	LTS
Greenhouse Gas Emissions and Climate Change			
Impact 3.4-1: Generate GHG Emissions, Either Directly or Indirectly, that May Have a Significant Impact on the Environment The project would result in GHG emissions from construction activities and operational activities including vehicle trips and operation of the CHP engines. By generating electricity on-site with biogas, the project would displace existing indirect GHG emission from electricity generation provided by SMUD. This displacement outweighs the smaller increases in operational emissions from	NI	No mitigation is required for this impact.	NI

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
additional worker commute trips and increased natural gas usage. The project would result in 65 percent reduction in GHG emissions from existing conditions. Additionally, construction emissions would be below SMAQMD thresholds and would also be offset by the net reduction in GHG emissions during operations. Therefore, the project's GHGs would not be cumulatively considerable contribution to climate change. There would be no adverse impact; a net reduction in GHG would be beneficial.			
Impact 3.4-2: Conflict with an Applicable Plan, Policy, or Regulation Adopted for the Purpose of Reducing the Emissions of GHGs The project would result in a net reduction in GHG emissions compared to existing conditions. The project is also consistent with CARB's statewide strategy to use renewable biofuels in place of fossil fuels as it would use digester gas to generate electricity on-site. Thus, the project would be consistent with the goals of the 2017 Scoping Plan. Therefore, there would be no impact.	NI	No mitigation is required for this impact.	NI

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Table ES-2 Summary of Environmental Effects of the Alternatives Relative to the Proposed Regional San BioGeneration Facility Project

Environmental Topic	Proposed Project	Alternative 1: No Project – No Action Alternative	Alternative 2: No Project - SMUD Agreement Extension Alternative	Alternative 3: Trigeneration Alternative
Air Quality	LTS	Greater	Greater	Less
Biological Resources	LTS/M	Less	Less	Similar
Cultural and Tribal Cultural Resources	LTS/M	Less	Less	Similar
Greenhouse Gas Emissions and Climate Change	NI	Greater	Greater	Greater

Notes: NI = no impact; LTS = less than significant; LTS/M = less than significant with mitigation

Source: Compiled by Ascent Environmental in 2023

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1 INTRODUCTION

This draft environmental impact report (Draft EIR) evaluates the environmental impacts of the proposed Sacramento Regional County Sanitation District (Regional San) BioGeneration Facility Project. This Draft EIR has been prepared under the direction of Regional San in accordance with the requirements of the California Environmental Quality Act (CEQA) (Public Resources Code [PRC] Section 21000-21177) and the State CEQA Guidelines (California Code of Regulations [CCR], Title 14, Division 6, Chapter 3, Sections 15000-15387). Regional San is the lead agency for consideration of this EIR and potential project approval.

1.1 PURPOSE AND INTENDED USES OF THIS DRAFT EIR

CEQA requires that public agencies consider the potentially significant adverse environmental effects of projects over which they have discretionary approval authority before taking action on those projects (PRC Section 21000 *et seq*.). CEQA also requires that each public agency avoid or mitigate, wherever feasible, the significant adverse environmental effects of projects it approves or implements. If a project would result in significant and unavoidable environmental impacts (i.e., significant effects that cannot be feasibly mitigated to less-than-significant levels), the project can still be approved, but the lead agency's decision-maker, in this case the Regional San Board of Directors, must prepare findings and issue a "statement of overriding considerations" explaining in writing the specific economic, social, or other considerations that they believe, based on substantial evidence, make those significant effects acceptable (PRC Section 21002, CCR Section 15093).

According to CCR Section 15064(f)(1), preparation of an EIR is required whenever a project may result in a significant adverse environmental impact. An EIR is an informational document used to inform public agency decision makers and the public of the significant environmental effects of a project, identify possible ways to mitigate or avoid the significant effects, and describe a range of reasonable alternatives to the project that could feasibly attain most of the basic objectives of the project while substantially lessening or avoiding any of the significant environmental impacts. Public agencies are required to consider the information presented in the EIR when determining whether to approve a project.

In accordance with CCR Section 15161, this document is a project EIR. This type of EIR focuses on the changes in the environment that would result from a specific project. In accordance with CCR Section 15161, a project EIR must examine the environmental effects of all phases of the project, including construction and operation.

Because it has the principal authority over approval or denial of the project, Regional San is the lead agency, as defined by CEQA, for this EIR. Other public agencies with jurisdiction over the project are listed below in Section 1.3, "Agency Roles and Responsibilities."

1.2 SCOPE OF THIS DRAFT EIR

Pursuant to CEQA and the State CEQA Guidelines, a lead agency shall focus an EIR's discussion on significant environmental effects and may limit discussion on other effects to brief explanations about why they are not significant (PRC Section 21002.1, CCR Section 15128). A determination of which impacts would be potentially significant was made based on a review of the information presented in the Initial Study prepared for the project (Appendix A) and comments received as part of the public scoping process (Appendix A), as well as additional research and analysis of relevant project data during preparation of this Draft EIR.

Regional San has determined that the project has the potential to result in significant environmental impacts on the following resources, which are addressed in detail in this Draft EIR:

- Air Quality,
- Biological Resources,
- Cultural and Tribal Cultural Resources, and
- Greenhouse Gas Emissions and Climate Change.

1.2.1 Effects Found Not to be Significant

CEQA allows a lead agency to limit the detail of discussion of the environmental effects that are not considered potentially significant (PRC Section 21100, CCR Sections 15126.2[a] and 15128). Effects dismissed in an Initial Study as clearly less-than-significant need not be discussed further in the EIR unless the lead agency subsequently receives information inconsistent with the finding in the Initial Study (CCR Section 15143).

Based on a review of the information presented in the Initial Study prepared for the project (Appendix A) and comments received as part of the public scoping process (Appendix A), as well as additional research and analysis of relevant project data during preparation of this Draft EIR, the following were identified as resources that would not experience any significant environmental impacts from the project. Accordingly, these resources are not addressed further in this Draft EIR but are identified below and followed with a brief explanation as to why significant effects to each resource are not anticipated, as required by CEQA.

- Aesthetics
- Agriculture and Forestry Resources
- Energy
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation
- Utilities and Service Systems
- Wildfire

AESTHETICS

The project area is currently vacant and located within the Sacramento Regional Wastewater Treatment Plant (SRWTP) site. The treatment plant has an overall industrial appearance, with large metal tanks, pipes, concrete structures, and other similar facilities. The project would change views of the site from vacant land to a biogeneration facility within the overall treatment plant site. However, the only public viewpoint that provides partial views of the SRWTP site is Cosumnes River Boulevard. However, views of the site are distant and temporary for motorists. In addition, there are no scenic vistas in the project vicinity or with views of the project area. Abandonment and demolition of existing utilities would not result in substantial changes in views. Therefore, the project would not adversely affect a scenic vista.

The nearest designated state scenic highway is State Route (SR) 160, located approximately 2 miles west of the project area. Interstate 5 (I-5) is designated by Sacramento County as a scenic corridor and is located approximately 1.6 miles west of the project area. However, the project area is not located within the viewshed of SR 160 or I-5. Furthermore, the project would not damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings.

The proposed biogeneration facility site, staging area, and the utility to be abandoned/demolished are within the core facility area of the SRWTP. The east side of the core facility area has the largest concentration of existing structures, with the less developed western half of the core facility area having scattered structures, roads, emergency storage basins, and solids storage basins. During project construction, views in the area would be modified as a result of the temporary presence of construction and equipment and activities. However, the appearance of construction equipment and activities would be temporary, consistent with the developed nature surrounding the project area, and would only be visible to Regional San employees. Once construction activities are complete, views of the proposed biogeneration facility site would change from vacant land to development associated with the new biogeneration facility. The new buildings would be consistent with the existing buildings on-site and the existing SRWTP facilities. Public views of project facilities would limited to temporary, distant views from motorists.

Construction-related activities would occur during daylight hours and would not require nighttime lighting. The project facilities would mainly be constructed of metal and concrete and would not be constructed with materials that

would create substantial glare. The project would also include minor, new exterior security lighting on the building, which would be consistent with lighting from surrounding SRWTP facilities. Therefore, the project would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

For the reasons above, the project would not result in significant impacts related to aesthetics, and this issue is not discussed further.

AGRICULTURE AND FORESTRY RESOURCES

The project area and existing utilities are located in an industrial area that does not contain Important Farmland according to the Farmland Mapping and Monitoring Program. Land northeast of the project area is designated as Farmland of Local Importance; however, this land is within the SRWTP property, is not in agricultural production, and would not be affected by the project. The project area and surrounding lands are not subject to a Williamson Act contract, which are financial instruments intended to facilitate retention of agricultural uses. Therefore, the project would not convert farmland to non-agricultural use, nor would it conflict with zoning for agricultural use or a Williamson Act contract.

The project vicinity does not include forest land or timberland and is not zoned for such uses. Therefore, the project would not result in the loss of forest land or conversion of forest land to non-forest use, nor would it conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production.

For the reasons above, the project would not result in significant impacts related to agriculture and forestry resources, and this issue is not discussed further.

ENERGY

Construction-related Energy Use

Energy would be required to construct the project, operate, and maintain construction equipment, and transport construction materials. The one-time energy expenditure required to construct the new building and infrastructure associated with the project would be non-recoverable. Most energy consumption would result from operation of construction equipment and vehicle trips associated with commute trips by construction workers and haul trucks supplying materials.

The energy needs for project construction would be temporary and are not anticipated to require additional capacity or increase peak or base period demands for electricity or other forms of energy. Construction equipment and associated energy consumption would be typical of that associated with construction of energy recovery projects.

Operational Energy Use

Energy would also be required for operation of the project related to electricity, heat, and fuel for employees. Compliance with California Code of Regulations Title 24 Energy Efficiency Standards would result in an energy-efficient building. The new biogeneration facility would require electricity for operation. However, the proposed combustion engines would produce between 10 and 15 megawatts (MW) of power, which would offset utility power purchases. Annual electricity generated by the engines is estimated to be between 74,460 megawatt hours (MWh) and 105,000 MWh per year.

Under existing conditions, natural gas is blended with biogas to meet specifications for generating electricity and heat at the Carson Cogen Plant and/or Cosumnes Power Plant, which is where the biogas is currently processed. Project operation would also require the use of natural gas for blending with the biogas to generate electricity and heat. Because natural gas is used for blending under current conditions and with the project, overall natural gas use with the project is expected to be similar to existing conditions. Operation of a biogeneration facility at the SRWTP site would result in increased efficiencies compared to delivering the biogas to the Sacramento Municipal Utility District in exchange for electricity and steam and an objective of the project is to increase the overall efficiency related to the use of biogas produced at the SRWTP.

Fewer than 10 new employees and a small increase in maintenance-related vehicle trips would be required for project operation. Project trips would be limited to employee trips only and fuel consumption associated with vehicle trips would not be considered inefficient, wasteful, or unnecessary in comparison to other similar developments in the region.

According to Appendix F of the CEQA Guidelines, the means to achieve the goal of conserving energy includes decreasing overall per capita energy consumption, decreasing reliance on natural gas and oil, and increasing reliance on renewable energy sources. Because the project is a renewable energy project, it would increase reliance on renewable energy sources. The project's energy consumption would not be considered wasteful, inefficient, or unnecessary.

Relevant plans that pertain to the efficient use of energy include the California Energy Commission's Integrated Energy Policy Reports, which provides a summary of priority energy issues currently facing the state, outlining strategies and recommendations to further the State's goal of ensuring reliable, affordable, and environmentally responsible energy sources. Energy topics covered in the report include progress toward statewide renewable energy targets, renewable energy, energy provisioning reliability and infrastructure, and transportation energy demand (Bailey et al. 2021). Project-generated vehicles miles traveled would increase slightly related to a small increase in long-term employees. Although the addition of up to 10 new employees would result in more energy use, the project would be designed with energy efficiency design features and the project would offset all electricity use through electricity generated by the project. In addition, the project would further the state's goals for use of renewable energy. Therefore, the project would not conflict with a state or local plan for renewable energy or energy efficiency.

For the reasons above, the project would not result in significant impacts related to energy, and this issue is not discussed further.

GEOLOGY AND SOILS

The project area is not located within a fault zone as delineated on an Alquist-Priolo Fault Zoning Map (California Geologic Survey 2021), nor is it located within a seismically active area. No faults are mapped as crossing or trending towards the project area; therefore, the potential for surface rupture within the project area is considered low. Moderate ground motion could occur as a result of faults in the surrounding area; however, the new building and associated facilities would be constructed in accordance with the California Building Code (CBC), which provides minimum standards for building design in the State of California. Chapter 16 of the CBC (Structural Design Requirements) includes regulations and building standards governing seismically resistant construction and construction techniques to protect people and property from hazards associated with excavation cave-ins and falling debris/construction materials. Chapter 18 of the CBC provides regulations regarding site excavations, foundations, retaining walls, and grading, including, but not limited to, requirements for seismically resistant design, foundation investigation, stable cut and fill slopes, and excavation, shoring, and trenching. Abandonment/demolition of existing utilities would not result in any new structures that would be subject to seismic hazards. Therefore, potential hazards associated with strong seismic ground shaking would be minimized.

Liquefaction is possible in areas of loose, sandy soils with a high-water content. Soils located within the project area are moderately to well drained; however, groundwater depths are shallow (10 to 20 feet below sea level) (Regional San 2016). As discussed above, the new building and associated facilities would be constructed in accordance with the CBC, which provides regulations and building standards governing seismically resistant construction. Therefore, potential hazards associated with seismic-related ground failure (including liquefaction) would be minimized.

The project area is located in a flat area. In general, landslide susceptibility is low in areas where slopes are low, even in weak ground material. Because slopes are generally flat in the project vicinity, landslide susceptibility for the project would be low. Further, the project would not be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project.

Grading and excavation during project construction would result in exposure of soil to potential wind and water erosion until the project area is effectively stabilized and revegetated. Abandonment and demolition of existing facilities would not require ground disturbance. The project would disturb up to 5.6 acres that are not currently paved, and construction projects disturbing 1 acre typically need to obtain coverage under the State Water Resources Control Board's (SWRCB)

Construction General Permit. However, the project would not require a National Pollutant Discharge Elimination System construction stormwater permit (Notice of Intent to proceed under General Construction Permit) for disturbance of more than 1 acre because the project is within SRWTP's ring levee and existing process area. Stormwater would be subject to a Water Pollution Control Plan and runoff would be contained within the SRWTP.

Runoff from the project area flows into the storm drainage system within the SRWTP site and is routed to the SRWTP for treatment. Treated wastewater, including stormwater, is discharged in accordance with Regional San's existing the National Pollutant Discharge Elimination System (NPDES) permit (Order R5-2021-0019-01) for discharge of treated effluent to the Sacramento River.

The project does not include construction of any habitable buildings. However, if expansive soils are encountered on-site, damage to building foundations, underground utilities, and other subsurface facilities could occur if these facilities are not designed and constructed to resist the changing soil conditions. The project would comply with the CBC, which includes provisions for construction on unstable and expansive soils. As required by the CBC, preparation of a preliminary soils report and/or geotechnical investigation would assess site-specific conditions and include measures to prevent unstable or expansive soils from becoming problematic, such as fill selection, moisture control, and compaction during construction. Therefore, potential hazards associated with expansive soils would be minimized.

Implementation of the project would not involve the use of septic tanks or alternative wastewater disposal systems.

Ground-disturbing activities in fossil-bearing soils and rock formations have the potential to encounter paleontological resources during project construction. Therefore, there is the potential to inadvertently damage or destroy paleontological resources that may be present below the ground surface. However, with implementation of environmental commitment EC-1 in Chapter 2, "Project Description," potential inadvertent impacts to paleontological resources would be avoided because construction workers and operational personnel would be alerted to the possibility of encountering paleontological resources, work would stop if a paleontological resource was encountered, and if unique paleontological resources are encountered they would be identified and salvaged by a qualified paleontologist, thereby preventing the destruction of a unique paleontological resource. With implementation of EC-1, the project would not result in significant impacts related to paleontological resources.

For the reasons above, the project would not result in significant impacts related to geology and soils, and this issue is not discussed further.

HAZARDS AND HAZARDOUS MATERIALS

Construction of the project would involve the routine transport and handling of hazardous substances such as diesel fuels, lubricants, and solvents. Handling and transport of these materials could result in the exposure of workers to hazardous materials. Construction workers would be required to use, store, and transport hazardous materials in accordance with local, state, and federal regulations, including California Occupational Safety and Health Administration and California Department of Toxic Substances Control (DTSC) requirements and manufacturer's instructions, during project construction. Small amounts of lubricants would be stored on-site for operation of the biogas facility. The project would be required to implement and comply with existing hazardous materials regulations and the storage and handling of hazardous materials would be consistent with chemicals currently stored on-site for operation of the SRWTP. In addition, any changes to storage of on-site chemicals would be addressed by SRWTP's existing hazard and hazardous materials plans. Therefore, the project would not create significant hazards to the public or environment through the routine transport, use, and disposal of hazardous materials.

There are no reported or anticipated sources of hazardous material contamination within the project area or vicinity of the utilities proposed for abandonment/demolition. However, project construction including excavation of soils, could potentially result in disturbance of previously unknown contaminants. These actions could result in the exposure of construction workers to hazardous materials. Implementation of environmental commitment EC-2 in Chapter 2, "Project Description," would avoid potential hazards associated with disturbance of previously unknown contaminants because remediation would be required upon discovery of unknown contaminates on the site. With implementation of EC-2, the project would not result in significant impacts related to exposure of construction workers to hazardous materials.

There are no existing or proposed schools located within 0.25 mile of the project. The nearest schools are both located approximately 1.4 miles from the project area. Therefore, the project would not emit hazardous emissions or handle hazardous materials within 0.25 mile of an existing or proposed school.

Neither the project area nor the area of existing utilities to be abandoned/demolished are identified on the Cortese List or other state or county hazardous materials lists. Further, review of regulatory agency databases indicated that there are no hazardous waste sites within 0.25 mile of the project area (DTSC 2021, California Environmental Protection Agency 2021, SWRCB 2021). Thus, known hazardous materials sites would not be affected during implementation of the project.

There are no public airports within 2 miles of the project area, and the project area is not within an airport land use plan area. The nearest airport is Borges-Clarksburg Airport, which is a private airstrip located 2.5 miles from the project area. This airstrip is limited to agriculture and recreational use. Therefore, the project would not result in a safety hazard for people residing or working in the project area.

The County Evacuation Plan and the SRWTP hazardous materials plan identify evacuation routes in the project vicinity. Trucks and equipment traveling to the project area would use Laguna Boulevard, Dwight Road, and Central Street. Dwight Road is identified as an evacuation route. Construction vehicles would stage within the project footprint, and they would not stage near or block any evacuation routes. However, use of Dwight Road for construction equipment could temporarily affect accessibility of roadways to emergency vehicles. Implementation of environmental commitment EC-3 in Chapter 2, "Project Description," would avoid potential interference with an evacuation plan because it would require the emergency access and access for local land uses be maintained. With implementation of EC-3, the project would not result in significant impacts related to adopted emergency response plans or emergency evacuation plans.

The project area is not in an area designated as having a high potential for wildland fires. Vehicles and other equipment would be used during construction, but the project would adhere to spark-arresting and fire extinguishing requirements. In the long-term, the project would result in construction of a new biogeneration facility that would have the potential for fire hazards during operations related to the use of compressed natural gas (CNG) on-site. However, the CNG facilities would be within a paved area, and the facilities would have extensive safety measures. Additionally, CNG is currently used on-site at the Carson Cogen Plant. Furthermore, the project would not introduce new residents into a high fire severity zone. Therefore, the project would not expose people or structures to a significant loss, injury, or death involving wildland fires.

For the reasons above, the project would not result in significant impacts related to hazards and hazardous materials, and this issue is not discussed further.

HYDROLOGY AND WATER QUALITY

Wastewater Discharge

Construction of the project would disturb more than 1 acre and would typically be subject to the Construction General Permit. However, the project would not require a National Pollutant Discharge Elimination System construction stormwater permit (Notice of Intent to proceed under General Construction Permit) for disturbance of more than 1 acre because the project is within SRWTP's ring levee and existing process area. Stormwater Pollution Prevention would be subject to a Water Pollution Control Plan and runoff would be contained within the SRWTP. In addition, if dewatering is required during construction, the project would comply with the General Order for Dewatering.

Drainage from the project area flows into the storm drainage system within the SRWTP site and is routed to the SRWTP headworks for treatment. Treated wastewater, including stormwater, is discharged in accordance with Regional San's existing NPDES permit (Order R5-2021-0019-01) for discharge of treated effluent to the Sacramento River. Construction of the project would alter drainage on the project area and the new facilities would include a restroom that would generate wastewater. With the project, stormwater would continue to drain into the SRWTP's storm drain system and wastewater from the new restroom would be connected to the SRWTP's general sanitary sewer drainage system. Both drainage systems would be routed to the SRWTP headworks for treatment and would continue to be discharged in accordance with Regional San's existing NPDES permit.

Compliance with these permitting requirements for construction and operation of the project would ensure that the project would not violate any water quality standards or waste discharge requirements.

Groundwater Recharge

The project area is underlain by the South American Subbasin, which is classified as a high priority basin. However, no groundwater would be withdrawn during project construction or operation; therefore, the project would not impede sustainable groundwater management of the basin.

The project area is currently undeveloped, and construction of the project would increase impervious surfaces on-site. The project is expected to result in a maximum increase of 3.4 acres of impervious surfaces. Project implementation has the potential to alter groundwater recharge within the proposed biogeneration facility site; however, the increase in impervious surfaces would not be substantial in relation to the size of the groundwater basin. Therefore, the project would not substantially interfere with groundwater recharge within the groundwater basin.

Stormwater pollution from the project area would be subject to a Water Pollution Control Plan and runoff would be contained within the SRWTP. Wastewater and stormwater runoff generated by the project would be treated at the SRWTP and discharged in accordance with Regional San's existing NPDES permit, so there would be no conflict with or obstruction of a water quality control plan during project operation. As noted above, project operation would not require the use of groundwater. Project implementation would result in a slight increase in wastewater use related to the new restroom. However, the increase in wastewater use would not be substantial and would not conflict with or obstruct implementation of water quality control plan or sustainable groundwater management plan.

Site Drainage and Stormwater Runoff

Project construction would involve excavation and movement of soil, which could result in erosion and siltation. These activities have the potential to cause or increase soil erosion and could discharge wastes into waterways in runoff. Compliance with existing requirements associated with the Water Pollution Control Plan and the General Order for Dewatering, if needed, would reduce potential erosion or siltation so that the project would not result in substantial long-term effects on water quality. Stormwater pollution from the project area would be subject to a Water Pollution Control Plan and runoff would be contained within the SRWTP. Project construction would include BMPs that would reduce and avoid substantial on- or offsite erosion and siltation or discharge of pollutants.

Project implementation has the potential to alter surface runoff from the addition of pavement on what is currently an undeveloped site. However, the project would not result in a substantial increase in impervious surfaces that would result in flooding on- or off-site. Drainage from the project area would continue to flow into the storm drainage system within the SRWTP site and be treated at the SRWTP. The project would not substantially increase the runoff from the project area and the SRWTP has adequate capacity to treat runoff from the project area. Therefore, the project would not exceed existing or planned stormwater capacity or create a substantial increase in runoff.

Flooding

The project area and existing utilities are not within a 100-year floodplain. In addition, there are no waterways within the project area and the project would not affect any waterways or redirect existing flows of a waterway.

The project area is not located within a flood hazard, tsunami, or seiche zone. The nearest large waterway is the Sacramento River, which could be subject to seiche. However, the project area is more than 2 miles from the river, and the potential for the project to be affected by a seiche or release pollutants as a result of a seiche is very low.

For the reasons above, the project would not result in significant impacts related to hydrology and water quality, and this issue is not discussed further.

LAND USE AND PLANNING

The project area is located within an existing wastewater treatment plant site and construction of the biogeneration facility would be compatible with the surrounding wastewater treatment facilities. Therefore, the project would not divide the established community.

The project would be consistent with the "Cemetery, Public & Quasi-Public" land use designation that applies to the majority of the proposed biogeneration facility site and the southern half of the staging area and the AG-80 zoning designation, which allows for government and local agency buildings and uses; however, the new biogeneration facility would not be consistent with the Natural Preserve land use designation. When special districts, including Regional San, are conducting governmental activities they are exempt from local government plans, policies, and ordinances. Nonetheless, Regional San voluntarily seeks to operate consistently with local governance to the extent feasible. While the project would not be consistent with the land use designation for the northeast corner of the proposed biogeneration facility site, these designations do not reflect the current conditions at the site. The northeast corner of the site is contained within a larger parcel that extends north of the SRWTP site into the surrounding Bufferlands where the land use designation is consistent with the land management practices employed throughout the Bufferlands. While there are several trees east of the staging area, no trees would be removed by the project. There is no riparian Valley Oak woodland or permanent or seasonal marshes on-site, the preservation of which is the objective of the Natural Preserve land use designation. Therefore, the project area does not contain any of the sensitive resources (i.e., riparian habitat, seasonal marshes) that are protected by the Natural Preserve land use designation. While the project would not be consistent with the land use designation, the project would not result in any changes to the existing land use that would conflict with the existing land use designations for the project area.

For the reasons above, the project would not result in significant impacts related to land use and planning, and this issue is not discussed further.

MINERAL RESOURCES

The project area and existing utilities are not located within an area of known mineral resources. In addition, the project area and existing utility area are not used for or zoned as a mineral resource area. No significant mineral deposits have been identified in the project area by the Sacramento County General Plan (Sacramento County 1993). Therefore, project implementation would not result in a loss of availability of locally important mineral resources or a known mineral resource that would be of value to the region and the residents of the state. Thus, no significant impacts to mineral resources would occur, and this issue is not discussed further.

NOISE

Construction and Operational Noise

Construction of the project would last between 18 and 24 months. Typical construction activities would include earthwork such as grading, excavation, trenching, backfilling, hauling, compaction, and demolition of utilities. Additionally, underground piping and utilities would be installed. Paving, lighting, drainage, and reinforced structures, including the new building, would be constructed. Construction equipment would involve the use of heavy equipment, including excavators, dozers, compactors, graders, boom truck, welding truck, and backhoes.

The loudest pieces of equipment that would be used during construction would include excavators, pavers, and dozers, all of which individually generate 85 decibels (dB) L_{eq} at 50 feet (Federal Highway Administration 2006:3). Calculations assumed simultaneous operation of three pieces of heavy equipment close to each other at the boundary of the project area closest to residential areas, 4,740 feet (0.9 mile) to the east. It was also assumed that building walls would provide 24 dB of attenuation for interior noise levels at the receptor (U.S. Environmental Protection Agency 1971:11).

Based on detailed calculations consistent with guidance in Federal Highway Administration's (FHWA) Roadway Construction Noise Model User's Guide (FHWA 2006) and presented in the Initial Study prepared for this project (Appendix A), exterior noise exposure at the nearest residence could reach up to 47 dB L_{eq}. Given that buildings typically provide an exterior-to-interior reduction of 24 dB (U.S. Environmental Protection Agency 1971:11), interior noise levels at this receptor would not exceed 23 dB L_{eq}. These modeled noise levels would not exceed the City of Elk Grove's daytime noise standard for outdoor areas of 55 dB L_{eq} (7:00 a.m. to 10:00 p.m.) as established in Section 6.32.080 of the Elk Grove Municipal Code (City of Elk Grove 2020). Additionally, no nighttime work is anticipated, and typical construction work hours would be Monday through Friday from 7:00 a.m. to 7:00 p.m.

Operation of the project would not change the operating hours at the existing SRWTP, which operates continuously 24 hours per day, every day. Routine maintenance would occur for all new facilities and would generally include regular preventative maintenance and inspections and adjustments. Maintenance would occur periodically or annually depending on the specific facility and would be similar to existing maintenance activities. Because the project would result in the long-term employment of no more than 10 additional full-time employees, the increase in associated vehicle trips and traffic noise would be nominal.

In summary, the project would not result in the exposure of noise-sensitive receptors to noise levels that exceed applicable local noise standards either during construction or operation.

Vibration

Project construction would not involve the use of ground vibration-intensive activities, such as pile driving or blasting that typically generate the highest vibration levels and are, therefore, of greatest concern when evaluating construction-related vibration impacts. Pieces of equipment that generate lower levels of ground vibration such as excavators, front-end loaders, compactors, and trucks would be used during construction. However, these types of equipment do not generate excessive vibration that could result in off-site effects. Because no pile driving or blasting would occur during project construction, construction-generated vibration would not result in adverse vibration effects to off-site receptors, buildings, or infrastructure.

Airport Noise

The nearest airport to the project area is the Borges-Clarksburg Airport, a small private airport located approximately 2.5 miles west of the project area. Sacramento Executive Airport is the next closest airport and is located approximately 4.2 miles north of the project area. The project area is not within 2 miles of an airport or within an area subject to an airport land use plan. Therefore, the project would not expose people residing or working in the project area to excessive noise levels associated with airports or private airstrips.

For the reasons above, the project would not result in significant impacts related to noise, and this issue is not discussed further.

POPULATION AND HOUSING

No existing homes would be removed or displaced by the project's construction or operational activities, and the project would not include construction of new housing or businesses, nor would it extend roads or infrastructure that would lead to population growth. Thus, no significant impacts to population and housing would occur, and this issue is not discussed further. The potential for growth-inducing effects is considered, as required by CEQA, in Chapter 6, "Other CEQA Sections."

PUBLIC SERVICES

The project would not increase demand for fire or police protection services such that the construction of new or expansion of existing fire or police service facilities would be required. The project does not include a residential component that would necessitate additional police or fire coverage. As noted above, the project would not provide any new housing that would generate new students in the community that would require school facilities or a need for new or expanded park facilities. Thus, no significant impacts to public services would occur, and this issue is not discussed further.

RECREATION

Construction and operation of the new biogeneration facility would not increase the use of existing recreational facilities—the closest being Caston Park, located approximately 1 mile from the project area—such that substantial physical deterioration of these facilities would occur or be accelerated. The project would not involve any changes to permitted uses of existing recreational facilities, nor would it require the construction of new recreational facilities or the expansion of existing ones that might have an adverse physical effect on the environment. Thus, no significant impacts to recreation would occur, and this issue is not discussed further.

TRANSPORTATION

Project construction could temporarily interfere with existing vehicle, transit, bicycle, and pedestrian circulation as it would result in a temporary increase of vehicles on surrounding roadways attributed to worker commutes and materials delivery, which may result in additional traffic or congestion. Operation of the project would result in a small increase in long-term vehicle trips associated with 10 new employees and increased maintenance activity. While project operation would result in a small increase in vehicle trips, it would not increase the transit, pedestrian, or bicycle use in comparison to the existing conditions. Project construction would be temporary and would not require road closures, and operation of the project would result in a small increase in long-term vehicle trips. Therefore, the project would not conflict with programs, plans, ordinances, or policies related to circulation.

Temporary construction activities would result in an increase in vehicle trips associated with worker commutes and materials delivery. However, these additional trips would only occur during the 18- to 24-month construction period. For up to 2 weeks following construction, there would be an increase of up to four worker commute trips and a few pieces of equipment associated with abandonment/demolition of the existing utilities. During operation, there would be a small increase in vehicle trips associated with the 10 new employees and increased maintenance activity. However, the project would generate fewer than 110 trips per day which is generally assumed to cause a less-than-significant transportation impact, as described in the state's Technical Advisory on Evaluating Transportation Impacts (Governor's Office of Planning and Research 2018). Because the project would not change land uses in the project vicinity or increase the amount of development projected for the area, the project would be consistent with the population growth and vehicle miles travelled projections in regional and local plans.

The project would not require the construction, re-design, or alteration of any public roadways. The ingress and egress for the project area would be designed consistent with County design and safety standards. The project would not result in any geometric design features (e.g., sharp curves or dangerous intersections).

As discussed above under "Hazards and Hazardous Materials," major arterials in the project vicinity are designated as evacuation routes. Use of area roadways for construction equipment could temporarily affect accessibility of roadways to emergency vehicles. However, implementation of environmental commitment EC-3 in Chapter 2, "Project Description," would avoid potential interference with emergency access because it would require the emergency access and access for local land uses be maintained. With implementation of EC-3, the project would not result in significant impacts related to inadequate emergency access.

For the reasons above, the project would not result in significant impacts related to transportation, and this issue is not discussed further.

UTILITIES AND SERVICE SYSTEMS

The project would include construction of a new biogeneration facility, which would generate electricity and hot water. The effects of construction of this new facility are addressed throughout this Draft EIR (including the Initial Study prepared for the project [Appendix A]). Construction and operation of the project would result in a small increase in generation of wastewater; however, the increase would be small and would not require construction of new facilities or relocation of any existing facilities. The biogeneration facility would also result in an increase in electricity demand; however, the proposed project would produce between 10 and 15 MW of power, which would offset utility power purchases. Therefore, the project would not result in an increase in energy usage such that construction of new or expanded electrical facilities would be required. The project would include abandonment/demolition of existing utilities connecting the SRWTP and Carson Cogen Plant. Abandonment of these utilities would not affect supply or demand of any utilities, and the construction-related effects of abandonment/demolition of existing utilities is addressed throughout this Draft EIR. The project would not require construction of other new or expanded telecommunication facilities. The project would result in an increase in impervious surfaces but would not result in a substantial increase in runoff from the project area or require construction of new stormwater facilities outside of the project footprint. Stormwater runoff would continue to be captured and treated on-site and the project would not require expansion of the capacity of the stormwater drainage

system. Therefore, the project would not require construction of new or expanded facilities beyond those discussed in the Draft EIR (including the Initial Study prepared for the project [Appendix A]).

Wastewater generated by the project would be captured by the general sanitary sewer drainage system, which is routed to the SRWTP for treatment. The SRWTP is currently permitted to discharge an ADWF of 181 million gallons per day and has adequate capacity to serve the project.

This project would result in a negligible increase in water supply demand for construction and operation. However, the existing potable water system has adequate capacity to accommodate the increase in demand and is not expected to require capacity related upgrades. No new water supply entitlements, expanded entitlements, or facilities would be required.

During construction, there may be solid waste generated that would require disposal at a landfill. Spoil (soil and rock) excavated during construction would either be reused on-site for backfill or disposed of properly. Spoil not suitable for reuse would be temporarily stored at staging areas until characterized, and then hauled away to the proper disposal site (e.g., landfill). Operation of the project would generate a small amount of solid waste including waste from the digester conditioning system. Solid waste generated during construction and operation of the project would be delivered to Kiefer Landfill. This landfill is currently sized to satisfy all county landfill disposal needs through 2064. Therefore, the project would not generate solid waste in excess of state or local standards.

For the reasons above, the project would not result in significant impacts related to utilities and service systems, and this issue is not discussed further.

WILDFIRE

As discussed above under "Hazards and Hazardous Materials," use of area roadways by construction vehicles could temporarily affect accessibility of roadways to emergency vehicles. However, implementation of environmental commitment EC-3 in Chapter 2, "Project Description," would avoid potential interference with emergency access because it would require the emergency access and access for local land uses be maintained. With implementation of EC-3, the project would not result in significant impacts related to adopted emergency response plans or emergency evacuation plans.

The California Department of Forestry and Fire Protection (CAL FIRE) maintains fire hazard severity zone (FHSZ) maps for the Local Responsibility Area (LRA) and State Responsibility Area. The project area is located within the LRA but is not categorized as a "Very High" FHSZ (CAL FIRE 2021). The project would not exacerbate wildfire risks or include construction of structures that would be inhabited. In addition, the project would be connected to existing utilities at the SRWTP site and would not require the installation of infrastructure that could exacerbate fire risk, such as new roads, fuel breaks, emergency water sources, or power lines. Therefore, the project would not exacerbate wildfire risks in the project vicinity.

The project is in an area of flat terrain and would not involve changing slopes within the project area, which could expose people to risks of post-fire slope instability. Implementation of the project would result in a small increase in impervious surfaces within the project area. However, the additional impervious surfaces would not result in substantial runoff or drainage changes that would expose people or structures to significant risks that would increase the likelihood of flooding.

For the reasons above, the project would not result in significant impacts related to wildfire, and this issue is not discussed further.

1.3 AGENCY ROLES AND RESPONSIBILITIES

1.3.1 Lead Agency

Regional San is the lead agency responsible for approving and carrying out the project and for ensuring that the requirements of CEQA have been met. After the EIR public review process is complete, the Regional San Board of Directors will determine whether to certify the EIR (see State CEQA Guidelines Section 15090) and approve the project.

1.3.2 Trustee and Responsible Agencies

A trustee agency is a State agency that has jurisdiction by law over natural resources that are held in trust for the people of the State of California. California Department of Fish and Wildlife is a trustee agency.

Responsible agencies are public agencies, other than the lead agency, that have discretionary-approval responsibility for reviewing, carrying out, or approving elements of a project. The only responsible agency that may have responsibility for, or jurisdiction over, implementation of elements of the project is Sacramento Metropolitan Air Quality Management District (SMAQMD).

1.3.3 Other Required Permits and Approvals

SMAQMD will need to issue an Authority to Construct Permit (for devices that emit air pollutants) and Permit to Operate. No other permits or approvals from other agencies are anticipated to be required.

1.4 CEQA PUBLIC REVIEW PROCESS

1.4.1 Initial Study/Mitigated Negative Declaration

An Initial Study/Mitigated Negative Declaration for the proposed Regional San BioGeneration Facility Project was released for public review in May 2021 (State Clearinghouse No. 2021050080). Subsequently, Regional San decided to prepare a focused EIR in accordance with the provisions of CEQA.

1.4.2 Notice of Preparation and Initial Study

In accordance with PRC Section 21092 and CCR Section 15082, Regional San issued a Notice of Preparation (NOP) and Initial Study on August 16, 2021, to inform agencies and the public that an EIR was being prepared and to invite comments on the scope and content of the document (Appendix A). The NOP and Initial Study were submitted to the State Clearinghouse, which then distributed the NOP to potential responsible and trustee agencies; posted on Regional San's website (https://www.regionalsan.com/biogas-recycling); posted with the Sacramento County Clerk. In addition, the NOP was distributed directly to public agencies (including potential responsible and trustee agencies), individuals requesting to be notified of notices pertaining to the project and interested Native American Tribes. The NOP was circulated for a 30-day review period that ended September 14, 2021.

The purpose of an NOP is to provide sufficient information about the project and its potential environmental impacts to allow agencies and interested parties the opportunity to provide a meaningful response related to the scope and content of the EIR, including mitigation measures that should be considered and alternatives that should be addressed (CCR Section 15082[b]). Comments submitted in response to the NOP are used by the lead agency to identify broad topics to be addressed in the EIR. Comments on environmental issues received during the NOP public comment period are considered and addressed in this Draft EIR. Appendix A contains the NOP, Initial Study, and comment letters submitted during the NOP public comment period.

1.4.3 Public Review of this Draft EIR

This Draft EIR is being circulated for public review and comment for a period of 45 days, from March 29, 2023 to May 12, 2023.

During the public comment period, written comments from the public as well as organizations and agencies on the Draft EIR's accuracy and completeness may be submitted to Regional San. Written and/or email comments should be provided at the earliest possible date but must be received by 5:00 p.m. on May 12, 2023.

Comments should be addressed to:

Sacramento Regional County Sanitation District
10060 Goethe Road
Sacramento, CA 95827

Attn: Steve Nebozuk, Senior Civil Engineer
Phone: (916) 876-6118
E-mail: nebozuks@sacsewer.com

Agencies that will need to use the EIR when considering permits or other approvals for the project should provide the name, phone number, and email address of a contact person. Comments provided by email should include "Regional San BioGeneration Facility Project Draft EIR Comment" in the subject line, and the name and physical address of the commenter in the body of the email.

The Draft EIR is available online at: https://www.regionalsan.com/biogas-recycling.

1.4.4 Final EIR

Following public review of the Draft EIR, a Final EIR will be prepared that will include both written and oral comments on the Draft EIR received during the public review period, responses to those comments, and any revisions to the Draft EIR. The Draft EIR and Final EIR will comprise the EIR for the Regional San BioGeneration Facility Project.

Before taking action on the Regional San BioGeneration Facility Project, the lead agency is required to certify that the EIR has been completed in compliance with CEQA, that the decision-making body reviewed and considered the information in the EIR, and that the EIR reflects the independent judgment of the lead agency.

1.5 ORGANIZATION OF THE DRAFT EIR

This Draft EIR is organized as follows:

The "Executive Summary" introduces the Regional San BioGeneration Facility Project; provides a summary of the environmental review process, effects found not to be significant, and key environmental issues; and lists significant impacts and mitigation measures to reduce significant impacts to less-than-significant levels.

Chapter 1, "Introduction," describes the purpose of the EIR, the scope of the environmental analysis, agency roles and responsibilities, the CEQA public review process, organization of this Draft EIR, and standard terminology.

Chapter 2, "Project Description," describes the location, background, and goals and objectives for the Regional San BioGeneration Facility Project and describes the project elements in detail.

Chapter 3, "Environmental Impacts and Mitigation Measures," evaluates the expected environmental impacts generated by the Regional San BioGeneration Facility Project, arranged by subject area (e.g., Air Quality, Biological Resources). Within each subsection of Chapter 3, the regulatory background, existing conditions, analysis methodology, and thresholds of significance are described. The anticipated changes to the existing conditions after development of the project are then evaluated for each subject area. For any significant or potentially significant impact that would result from project implementation, mitigation measures are presented along with the remaining level of significance. Environmental impacts are numbered sequentially within each section (e.g., Impact 3.1-1, Impact 3.1-2). Any required mitigation measures are numbered to correspond to the impact numbering; therefore, the mitigation measure for Impact 3.1-2 would be Mitigation Measure 3.1-2.

Chapter 4, "Cumulative Impacts," provides information required by CEQA regarding cumulative impacts that would result from implementation of the Regional San BioGeneration Facility Project together with other past, present, and probable future projects.

Chapter 5, "Alternatives," evaluates alternatives to the Regional San BioGeneration Facility Project, including alternatives considered but eliminated from further consideration, the two No Project Alternatives, and one action alternative. The environmentally superior alternative is identified.

Chapter 6, "Other CEQA Sections," provides a discussion of growth-inducing impacts, significant and unavoidable impacts, and irreversible and irretrievable commitment of resources.

Chapter 7, "Report Preparers," identifies the individuals who contributed to preparation of this Draft EIR.

Chapter 8, "References," identifies the references used in preparation of this Draft EIR.

1.6 STANDARD TERMINOLOGY

This Draft EIR uses the following standard terminology:

- "No impact" means no change from existing conditions (no mitigation is needed).
- "Less-than-significant impact" means no substantial adverse change in the physical environment (no mitigation is needed).
- "Potentially significant impact" means an impact that might cause a substantial adverse change in the environment (mitigation is recommended because potentially significant impacts are treated as significant).
- "Significant impact" means an impact that would cause a substantial adverse change in the physical environment (mitigation is recommended).
- "Significant and unavoidable impact" means an impact that would cause a substantial adverse change in the physical environment and that cannot be avoided, even with the implementation of all feasible mitigation.

2 PROJECT DESCRIPTION

Regional San is proposing to construct and operate a biogas cogeneration facility within the existing Sacramento Regional Wastewater Treatment Plant (SRWTP) site. The project would beneficially use biogas produced by the SRWTP's anaerobic digesters to generate heat and power.

2.1 PROJECT BACKGROUND AND NEED

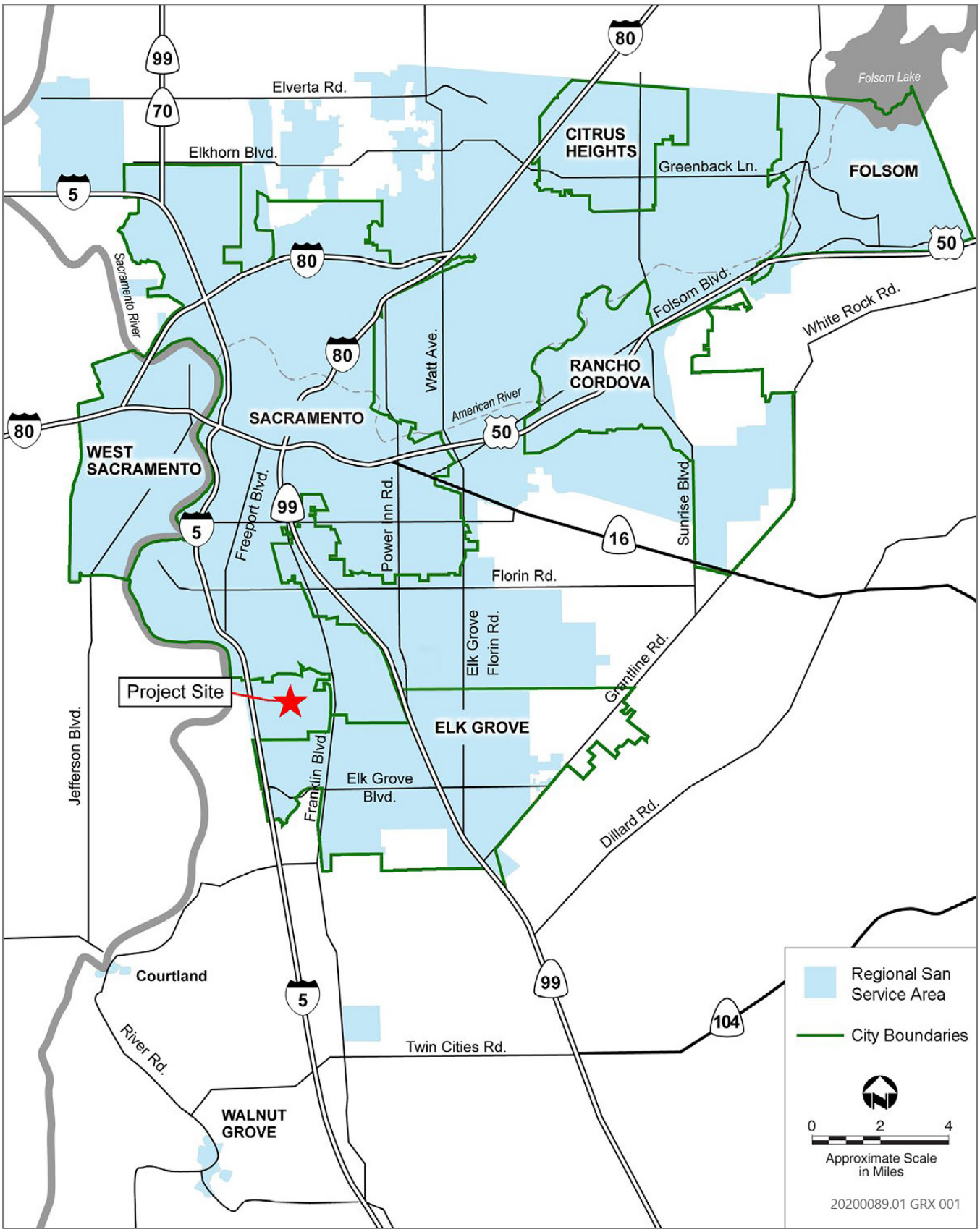
Regional San owns and operates a regional wastewater conveyance system (sewer lines and interceptors) and the SRWTP, and provides wastewater conveyance and treatment services to residential, industrial, and commercial customers throughout unincorporated Sacramento County; the cities of Citrus Heights, Elk Grove, Folsom, Rancho Cordova, Sacramento, and West Sacramento; and the communities of Courtland and Walnut Grove (Figure 2-1). The wastewater treatment process generates a variety of solids including primary sludge, grit, screenings (i.e., large debris), return activated sludge (activated sludge returned to the beginning of the secondary process), and waste activated sludge (sludge to be disposed of). Regional San feeds blended primary sludge and thickened waste activated sludge to six primary anaerobic digesters and two blending digesters. Anaerobic digestion produces biogas, which is a methane-rich, renewable byproduct of the solids digestion process that can be used as a renewable fuel.

Regional San has been in partnership with Sacramento Municipal Utility District (SMUD) for nearly 30 years. Under this partnership, Regional San delivers renewable biogas generated by the SRWTP wastewater treatment process to SMUD in exchange for reliable utility and backup power, steam for digester heating, and revenue according to the terms of the existing Commodity Agreement. The original driver for the agreement was the co-location of SMUD's Carson Cogeneration (Cogen) Plant on the SRWTP site, where biogas helped fuel the Carson Cogen plant, and steam from the Carson Cogen plant could be returned for digester heating. However, the benefits of co-location are no longer a driver for this agreement because SMUD now sends the biogas offsite to the Cosumnes Power Plant (see Section 2.3 for more detail).

With the Commodity Agreement expiring in 2025, Regional San is pursuing the project described below as an alternative use for its biogas. Use of biogas at the SRWTP site rather than off-site at SMUD's facilities would increase efficiencies and reduce costs for Regional San. Operation of a biogas conditioning system on-site would allow Regional San to schedule and stagger maintenance of the system such that downtime would be minimized. Minimizing downtime would eliminate current surplus flaring related to maintenance and unforeseeable overpressure events. Construction of an on-site biogas system would also allow decommissioning of three boilers currently operated by Regional San under SMAQMD permits, thereby eliminating emissions.

2.2 PROJECT LOCATION

The SRWTP is located at 8521 Laguna Station Road in Elk Grove and is surrounded by approximately 2,150 acres of open space owned by Regional San and known as the Bufferlands (Figure 2-1). The entire SRWTP site and Bufferlands are located north of Laguna Boulevard and lie predominantly within the unincorporated area of Sacramento County, between Franklin Boulevard and Interstate 5 (I-5) (Figure 2-2). The biogeneration project area (area of disturbance) would be located within the SRWTP site in a previously disturbed area north of the existing digesters. The project area is bordered by Digesters Way/Oregon Trail to the south and Septage Way to the north. The staging area would be immediately east of the proposed biogeneration facility site (Figure 2-3).

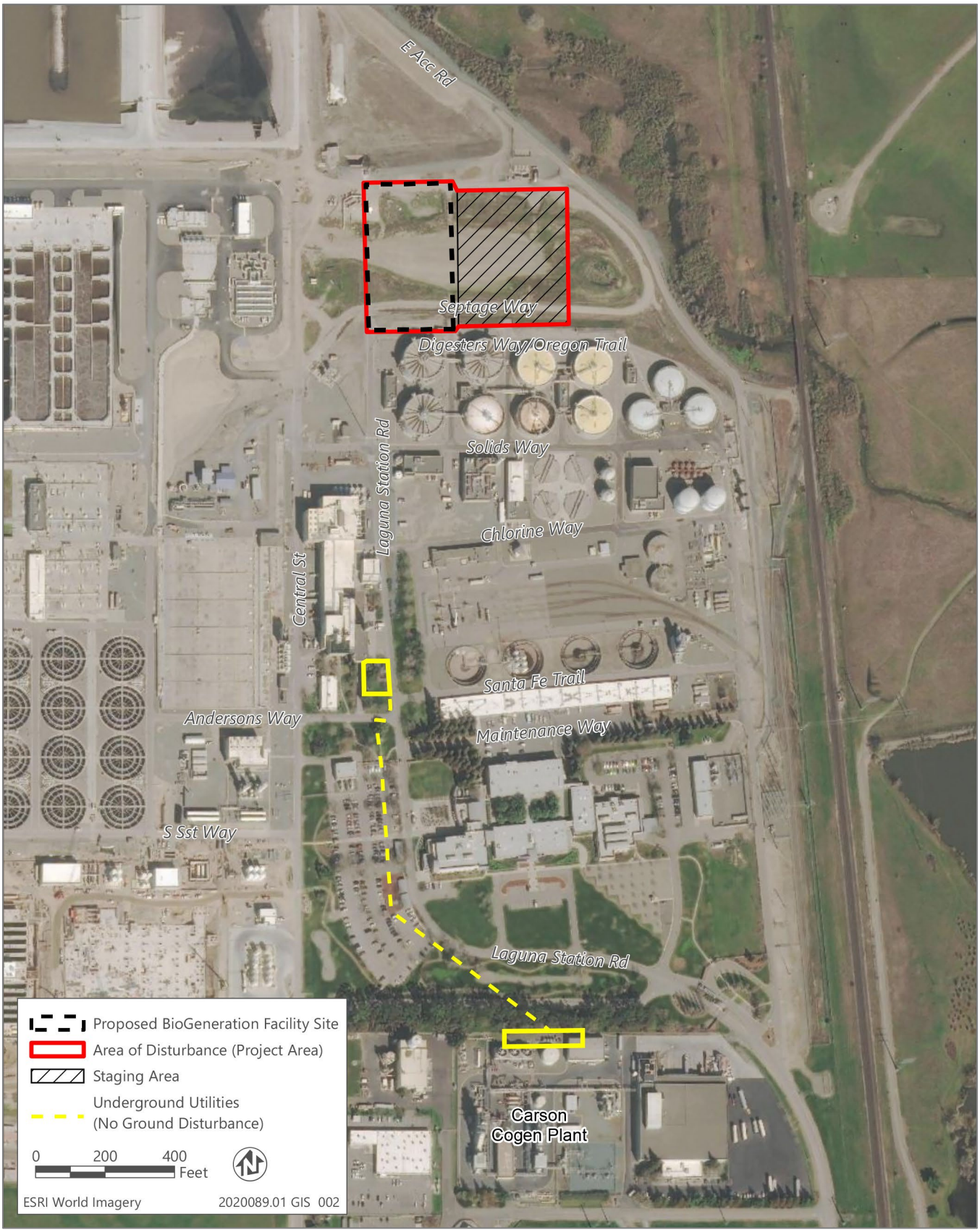


Source: adapted by Ascent Environmental in 2020

Figure 2-1 Regional San Service Area

Source: adapted by Ascent Environmental in 2022

Figure 2-2 Project Vicinity



Source: adapted by Ascent Environmental in 2022

Figure 2-3 Project Area

2.3 EXISTING FACILITIES

Wastewater is collected from customers' homes and businesses via sewer collection pipes operated by one of four local sewer agencies. These pipes connect to a network of 169 miles of interceptor pipelines, which convey the wastewater to the SRWTP. The SRWTP currently provides secondary treatment of wastewater through operation of a combined system consisting of bar screens, grit tanks, BNR basins, secondary sedimentation tanks, disinfection using sodium hypochlorite, and de-chlorination using sodium bisulfite. The SRWTP is permitted to discharge an average dry weather flow of 181 million gallons per day (mgd) to the Sacramento River. Actual discharges vary seasonally and range from 120 to 400 mgd, with higher wet weather flows occurring in rainy periods (RMC 2015). (These higher wet weather flows are allowable within the dry weather permitted flow of 181 mgd.) The SRWTP is undergoing a major upgrade to its treatment processes and will produce tertiary treated wastewater when completed by 2023. The current average biogas production rate is approximately 1,600 standard cubic feet per minute (Regional San 2020).

In addition to the facilities associated with the wastewater treatment process at the SRWTP, auxiliary systems are also in place and include: the Carson Cogen Plant, Biogas Enhancement Facility, odor control systems, other support facilities, water reclamation facility, fire protection system, and electricity and energy. Regional San's biogas is currently conveyed and treated in the existing gas management system. A Gas Management System Improvements Project was recently completed that improves the reliability and control of the existing flares and waste gas burners. The existing gas management system compressors do not have sufficient capacity to deliver full biogas production to SMUD. A single compressor cannot deliver the required flow, and two compressors operating in parallel do not have sufficient capacity without causing a surge. As a result, a portion of the biogas is currently flared.

Treated biogas resulting from digestion of solids at the SRWTP currently is captured and diverted to the Carson Cogen Plant or is injected into a SMUD-owned, natural gas utility pipeline that delivers the combined gas to the Cosumnes Power Plant located at Rancho Seco, approximately 20 miles southeast of the SRWTP. Since 1995, the Carson Cogen Plant has used SRWTP biogas and/or natural gas in natural gas turbines and then a duct burner to generate electricity. Waste heat from the gas turbine creates steam for use in a steam turbine to generate electricity. Together, two generators generate up to 100 megawatts (MW) of power for local residential and industrial use. Power from the Carson Cogen Plant is typically delivered to the local power grid, but it can also be sent directly to the SRWTP. In addition, the Carson Cogen Plant serves as an emergency backup power supply system to keep the SRWTP in operation if the local power grid were to fail.

Beginning in fall 2012, instead of using biogas only at the Carson Cogen Plant, SMUD began to compress the biogas for use at Cosumnes Power Plant. The Cosumnes Power Plant uses the combination of natural gas and SRWTP biogas as fuel for turbines and produces up to 600 MW of power. Presently, the SRWTP biogas can be used at either the Carson Cogen Plant or the Cosumnes Power Plant.

Regional San also operates a 40,000-gallon-per-day fats, oil, and grease receiving and handling Biogas Enhancement Facility. The organic waste received at this facility is screened and pumped to the digesters where it is co-digested with other wastewater solids. The additional biogas generation is used by SMUD to generate renewable energy at the Cosumnes Power Plant or the Carson Cogen Plant. In addition, the facility provides a new local disposal location option for commercial haulers of fats, oil, and grease.

In addition to the Carson Cogen Plant, electrical power to the SRWTP is supplied by the SMUD electrical grid. SMUD has existing 69 kilovolt facilities within the project area and along East Access Road. SMUD also operates the nearby Pocket and Franklin electrical substations, complexes of transformers, and switches located to the north and south, respectively. These two major substations are supplied with 230,000 volts (230 kilovolts) from the larger electrical grid and, along with the Carson Cogen Plant, supply electricity to the SRWTP. On average, the SRWTP's average electricity demand is 12 MW; however, the plant demand will further increase due to the treatment process enhancements currently under construction.

2.4 PROJECT OBJECTIVES

The goal of the project is to design and construct a biogas cogeneration facility before the Commodity Agreement expires in October 2025 that meets the following objectives:

- make the best use of biogas (highest economic and environmental value, greatest overall efficiency);
- minimize operations and maintenance costs;
- integrate into the existing SRWTP facilities;
- reduce emissions associated with use of biogas venting and flaring compared to existing conditions; and
- protect the environment through responsible stewardship of natural resources.

2.5 DESIGN-BUILD METHOD

The project would be designed and constructed via a fixed-price design-build method of project delivery. Regional San's goal in using this method is to provide a shorter elapsed time from project initiation to project operation; provide overall cost savings; provide a more efficient construction process; and promote higher quality and more innovative design solutions. With the design-build method, performance criteria are established for the facility's design characteristics, such as:

- minimum efficiency, uptime, and kilowatt-hour generation performance requirements;
- maximum height and square footage; and
- minimum parameters to meet maintenance and functionality requirements.

Many of the project characteristics provided in the following project description would be included in the performance criteria. Based on the performance criteria defined for the project, Regional San would issue a Request for Qualifications (RFQ) and begin a competitive selection process for design-build teams. Regional San would review submittals from prospective teams and shortlist teams to proceed to the Request for Proposal (RFP) phase.

Regional San would issue an RFP to the short-listed design-build teams and accept detailed proposals from each. The proposals would be reviewed and scored based on best value; project features, functions, and life-cycle costs; team experience; and past performance. Selection of the winning team would be based on its response to the RFP and compliance with the performance criteria. The winning proposal would become the defining contractual document that identifies project quality, scope, cost, and schedule. Final project design and construction would be completed by the selected team. It is anticipated that the design-build team selection process would be complete by 2023.

The analysis in this EIR is based on the performance criteria for the project. This is the typical stage at which CEQA review is conducted in a design-build process, in part, so that the future RFP can include any impact avoidance and mitigation measures that arise out of the CEQA review process. This approach places the CEQA process before completion of a more refined project design. However, the performance criteria are sufficient to support the EIR impact analyses. Where the performance criteria provide a maximum limit to a project characteristic, such as the building not exceeding 36 feet in height, the EIR will assume the project will meet that maximum limit. If, ultimately, the selected design-build team can achieve all necessary criteria with a shorter building, the EIR will still have evaluated the impacts of that design. If the performance criteria identify a range for a particular project characteristic, the EIR impact analysis will generally consider the higher value in the range. Again, if the ultimate project design meets the lower portion of the range, the EIR will have evaluated the impacts of that design.

2.6 PROPOSED FACILITIES

The project would include construction and operation of a new cogeneration engine system to use biogas onsite to produce electricity and heat for the SRWTP. The biogas cogeneration system would have several major interfaces with existing SRWTP systems including the following:

- gas management system,
- digester heating system,
- electrical power distribution system,
- plant computer control system, and
- site utilities.

The project would include the following components:

- up to six internal combustion engine generators,
- engine exhaust treatment (oxidation catalyst and selective catalytic reduction),
- a biogas conditioning system (as part of the gas management system),
- hot water boiler (standby), and
- a new building.

The project would also result in abandonment and demolition of existing utilities connecting the SRWTP and the Carson Cogen Plant. Three pipelines used for digester gas, condensate, and steam would be abandoned. Implementation of the project would also result in the curtailment of stationary sources operated by Regional San under existing conditions, including digester gas flaring by SRWTP's enclosed flares (ground flares) and waste gas burners. In addition, three boilers used to generate steam would be eliminated. The project would eliminate surplus flaring related to maintenance and unforeseeable overpressure events because this project would allow Regional San to operate its own digester gas conditioning system and schedule and stagger maintenance of the Combined Heat and Power engines such that downtime would be minimized. Three boilers currently operated by Regional San would be decommissioned as part of the project.

2.6.1 Combustion Engine Generators

The proposed combustion engine generators would produce between 10 and 15 MW of power, which would offset utility power purchases. In addition, one engine would serve as a standby. The project would include between four and six engine generators depending on the engine size selected. However, regardless of the number of engines selected, the combined power generation would not exceed 15 MW. Options for number of engines and engine sizes are shown in Table 2-1.

Table 2-1 Combustion Engine Generator Options

Engine Size	Number of Units (including 1 Standby)	Firm Capacity	Total Capacity
2 MW	5 + 1	10 MW	12 MW
3 MW	4 + 1	12 MW	15 MW
3.5 MW	3 + 1	10.5 MW	14 MW

The new engines would be required to meet the best-available control technology (BACT) for all criteria pollutants, as required by the Sacramento Metropolitan Air Quality Management District (SMAQMD) Rule 201, Section 301. BACT is determined at the time the permit application is deemed complete and the SMAQMD does not accept permit applications for projects until after they complete the CEQA review process. While SMAQMD's BACT determination for the project's engines cannot be stated with certainty at the time of writing this CEQA document, discussion of the likely BACT requirements is presented in Section 3.1, "Air Quality."

Annual electricity generated by the engines is estimated to be between 74,460 megawatt hours (MWh) and 105,000 MWh per year.

The engine system would cogenerate power and heat. Heat recovered from engine exhaust and jacket water (water that flows through the engine to keep it from overheating) would be used for process and space heating at the

SRWTP. The cogeneration system would have sufficient capacity to meet the SRWTP's average heat demand of 20 million British Thermal Units per hour (MMBtu/hr).

2.6.2 Engine Exhaust Treatment

Exhaust from the engines would be treated by oxidation catalyst and selective catalytic reduction to reduce carbon monoxide, volatile organic compounds, and NO_x, respectively. The selective catalytic reduction would use urea injection.

2.6.3 Biogas Conditioning System

The biogas conditioning system would be part of the larger gas management system and would remove hydrogen sulfide, siloxanes, and water from the biogas using a media that would be disposed of at an approved landfill. This system would consist of the following individual components:

- hydrogen sulfide removal vessels (granular iron oxide),
- cooling heat exchangers,
- blowers,
- glycol chillers and pumps,
- siloxane removal vessels, and
- particle filters.

2.6.4 Hot Water Boiler

One hot water boiler would be installed as part of the project to produce hot water needed to operate the digesters at optimal temperature. The boiler would be located within the new building or adjacent to the building under a canopy and would produce 19.9 MMBtu/hr of heat. The boiler would serve as a back-up heat source to the cogeneration engines.

2.6.5 Engine and Boiler Building

The project would include one new building constructed within the proposed biogeneration facility site immediately north of the existing digesters. The building would house the engines, electrical equipment, a control room, and a restroom. The building would be a maximum of 36 feet tall and is expected to be approximately 15,000 square feet.

2.6.6 Utility Demolition

Several underground utility lines connecting the SRWTP to the Carson Cogen Plant would be abandoned or demolished. The pipelines would be cut, and flanges would be welded to cap the lines. Some minor demolition of utilities within existing concrete vaults would also occur related to abandoning the existing pipelines. No ground disturbance is expected since demolition/abandonment work would be conducted inside the existing concrete vaults.

2.7 PROJECT CONSTRUCTION

Construction of the project would last between 18 and 24 months and is anticipated to begin in 2024. Typical construction activities would include earthwork such as grading, excavation, trenching, backfilling, hauling, and compaction. Additionally, underground piping and utilities would be constructed. Paving, lighting, drainage, and reinforced structures including the new building would be constructed. Delivery of construction materials and supplies to the site would be required. In total, up to 5.6 acres would be disturbed by project construction and

staging. A small amount of fill may need to be removed from the proposed biogeneration facility site and would be disposed of within the SWRTP site at a location already used for operations and not containing any biological resources habitat. Construction equipment would include excavators, dozers, compactors, graders, a boom truck to lift sections of pipe, welding truck, miscellaneous pipe fitting tools, and backhoes.

Construction would require between 15 and 20 construction workers per day during construction of the new facilities. Once construction is complete, four construction workers per day for up to 2 weeks would be required for abandonment/demolition of the existing utilities. Typical work hours would be Monday through Friday from 7:00 a.m. to 7:00 p.m. (construction noise is exempt from noise ordinances between 6:00 a.m. and 8:00 p.m. on weekdays within Sacramento County). No nighttime work is anticipated. Equipment, material, and vehicle staging would be accommodated at the SRWTP immediately east of the proposed biogeneration facility site (Figure 2-3).

Ingress and egress for construction traffic would be via Laguna Boulevard to Dwight Road. Then to Central Street, which connects to Septage Way.

2.7.1 Environmental Commitments

The following environmental commitment measures will be implemented by Regional San before and during project construction activities.

- **EC-1: Develop and implement a Cultural and Paleontological Resource Worker Environmental Awareness Program.**

  A worker environmental awareness program (WEAP) will be developed and implemented before construction activities that provides workers with information about sensitive resources with the potential to occur in the project area including cultural resources and paleontological resources.

  Cultural Resources

  Before construction activities, a qualified archaeologist will develop a tribal cultural resources awareness brochure for all construction personnel and supervisors who will have the potential to encounter any tribal and cultural resources. The brochure will be developed in coordination with representatives from Native American Tribes culturally affiliated with the project area. The topics to be addressed in the WEAP will include, at a minimum:

  - types of tribal and cultural resources expected in the project area;
  - types of evidence that indicates tribal or cultural resources might be present (e.g., ceramic shards, trash scatters, lithic scatters);
  - what to do if a worker encounters a possible resource;
  - what to do if a worker encounters bones or possible bones; and
  - penalties for removing or intentionally disturbing tribal and cultural resources, such as those identified in the Archeological Resources Protection Act.

  Paleontological Resources

  A qualified paleontologist will develop training materials for all construction personnel and supervisors who will have the potential to encounter any fossils. The training materials will describe the appearance and types of fossils likely to be seen during construction. Construction personnel will be trained about the proper notification procedures should fossils be encountered.

  The training materials will contain information about what to do if paleontological resources are discovered during earthmoving activities, including immediately halting operations within 100 feet of the find and notifying Regional San. Regional San will retain a qualified paleontologist for identification and salvage of fossils so that construction delays can be minimized. If large specimens are discovered, the paleontologist shall have the authority to halt or divert grading and construction equipment while the finds are removed. The paleontologist shall be responsible for implementing all tasks summarized below.

- In the event of discovery, salvage of unearthed fossil remains, typically involving simple excavation of the exposed specimen but possibly also plaster-jacketing of large and/or fragile specimens, or more elaborate quarry excavations of richly fossiliferous deposits.
- Recovery or stratigraphic and geologic data to provide a context for the recovered fossil remains, typically including description of lithologies of fossil-bearing strata, measurement and description of the overall stratigraphic section, and photographic documentation of the geologic setting.
- Laboratory preparation (cleaning and repair) of collected fossil remains to a point of curation, generally involving removal of enclosing rock material, stabilization of fragile specimens (using glues and other hardeners), and repair of broken specimens.
- Cataloging and identification of prepared fossil remains, typically involving scientific identification of specimens, inventory of specimens, assignment of catalog numbers, and entry of data into an inventory database.
- Preparation of a final report summarizing the field and laboratory methods used, the stratigraphic units inspected, the types of fossils recovered, and the significance of the curated collection.

- EC-2: Discovery of Unknown Contaminated Soils During Construction. If, during construction, currently unknown contaminated soils are discovered (discolored soils, odorous, other indications), construction within the area shall be halted, the extent and type of contamination shall be characterized, and a clean-up plan shall be prepared and executed. The plan shall require remediation of contaminated soils. Remediation can include in-situ treatment, disposal at an approved landfill, or other disposal methods, as approved. Construction can proceed within the subject area upon approval of and in accordance with the plan.
- EC-3: Traffic Management Plan. Implementation of the project will include a traffic management plan (TMP) that would minimize traffic congestion and conflicts as a result of construction activities. The TMP will be approved by the County of Sacramento before construction and complied with at all times during construction of the project. The TMP will be prepared by a qualified transportation engineer and would include but not be limited to the following measures:
  - Emergency services access to and surrounding the project area shall be maintained at all times for the duration of construction activities. Local emergency service providers shall be informed of proposed construction activities and identified haul routes.
  - Identify procedures for construction area evacuation in the case of an emergency declared by county or other local authorities.
  - Roadside safety protocols shall be complied with to reduce the risk of accident.
  - Use flaggers to direct traffic, as necessary.

2.8 PROJECT OPERATIONS

The project is expected to become operational in 2025. Operation of the project would not change the operating hours at the existing SRWTP. Currently, the plant operates continuously 24 hours per day, every day. Routine maintenance would occur for all new facilities, and would generally include preventative maintenance, daily, weekly, monthly, quarterly, and annual inspections and adjustments. Maintenance would occur periodically or annually depending on the specific facility and would be similar to existing maintenance. Operation of the project would require up to 10 additional full-time employees to operate and maintain the new facilities. Operation of the project would result in a small increase in long-term vehicle trips associated with the 10 new employees and increased maintenance activity. Operations-related vehicle trips would use the same access route as identified above for construction (Franklin Boulevard to Sims Road to Laguna Station Road to Septage Way).

2.9 POTENTIAL PERMITS AND APPROVALS REQUIRED

The project would require an Authority to Construct Permit and Permit to Operate from SMAQMD (for devices that emit air pollutants).

It is expected that the project would not require a National Pollutant Discharge Elimination System construction stormwater permit (Notice of Intent to proceed under General Construction Permit) for disturbance of more than 1 acre administered by the State Water Resources Control Board because the project is within SRWTP's ring levee and existing process area. Stormwater Pollution Prevention would be subject to a Water Pollution Control Plan and runoff would be contained within the SRWTP. If dewatering is required during construction, the project would comply with the General Order for Dewatering.

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3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

This chapter is organized by environmental resource category; each resource category is organized to provide an integrated discussion of the existing environmental conditions (including regulatory setting and environmental setting), potential environmental effects (including direct and indirect impacts), and measures to reduce significant effects, where feasible, of construction and operation of the proposed Regional San BioGeneration Facility Project.

Cumulative and growth-inducing impacts are discussed in Chapters 4, "Cumulative Impacts," and 6, "Other CEQA Sections," respectively.

APPROACH TO THE ENVIRONMENTAL ANALYSIS

In accordance with Section 15126.2 of the State CEQA Guidelines, this Draft EIR identifies and focuses on the significant direct and indirect environmental effects of the project, giving due consideration to both its short-term and its long-term effects. Short-term effects are generally those associated with construction, and long-term effects are generally those associated with facility operations. As described in Chapter 1, "Introduction," this analysis focuses on a limited number of environmental resource topics because other topics have been found to be less than significant in the Initial Study (see Appendix A).

The remainder of this chapter addresses the following resource topics:

- Section 3.1, Air Quality
- Section 3.2, Biological Resources
- Section 3.3, Cultural and Tribal Cultural Resources
- Section 3.4, Greenhouse Gas Emissions and Climate Change

Sections 3.1 through 3.4 follow the same general format:

Regulatory Setting presents the laws, regulations, plans, and policies that are relevant to each issue area. Regulations originating from the federal, state, and local levels are each discussed as appropriate.

Environmental Setting presents the existing environmental conditions in the project area and in the surrounding area as appropriate, in accordance with State CEQA Guidelines (California Code of Regulations [CCR] Section 15125). This setting generally serves as the baseline against which environmental impacts are evaluated. The extent of the environmental setting area evaluated differs among resources, depending on the locations where impacts would be expected. For example, air quality impacts are assessed for the air basin (macroscale) as well as the project vicinity (microscale).

Environmental Impacts and Mitigation Measures identifies the thresholds of significance used to determine the level of significance of the environmental impacts for each resource topic, in accordance with the State CEQA Guidelines (CCR Sections 15126, 15126.2, and 15143). The thresholds of significance used in this Draft EIR are based on the checklist presented in Appendix G of the State CEQA Guidelines; best available data; and regulatory standards of federal, state, and local agencies. The level of each impact is determined by comparing the effects of the project to the environmental setting. Key methods and assumptions used to frame and conduct the impact analysis as well as issues or potential impacts not discussed further (such issues for which the project would have no impact) are also described.

Project impacts are organized numerically in each subsection (e.g., Impact 3.1-1, Impact 3.1-2, Impact 3.1-3). A bold-font impact statement, a summary of each impact, and its level of significance precedes the discussion of each impact. The discussion that follows the impact summary includes the substantial evidence supporting the impact significance conclusion.

The Draft EIR must describe any feasible measures that could avoid, minimize, rectify, reduce, or compensate for significant adverse impacts, and the measures are to be fully enforceable through incorporation into the project and

adoption of a Mitigation Monitoring and Reporting Plan (Public Resources Code Section 21081.6[b]). Mitigation measures are not required for effects that are found to be less than significant. Where feasible mitigation for a significant impact is available, it is described following the impact along with its effectiveness at addressing the impact. Each identified mitigation measure is labeled numerically to correspond with the number of the impact that would be mitigated by the measure. Where sufficient feasible mitigation is not available to reduce impacts to a less-than-significant level, or where Regional San lacks the authority to ensure that the mitigation is implemented when needed, the impacts are identified as remaining "significant and unavoidable."

3.1 AIR QUALITY

This section includes a discussion of existing air quality conditions, a summary of applicable regulations, and an analysis of potential construction and operational air quality impacts that could occur from the proposed construction of the Regional San BioGeneration Facility Project (project).

3.1.1 Regulatory Setting

Air quality in the project area is regulated through the efforts of various federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, planning, policymaking, education, and a variety of programs. The agencies responsible for improving the air quality within the air basins are discussed below.

FEDERAL

U.S. Environmental Protection Agency

The U.S. Environmental Protection Agency (EPA) has been charged with implementing national air quality programs. EPA's air quality mandates draw primarily from the federal Clean Air Act (CAA), which was enacted in 1970. The most recent major amendments were made by Congress in 1990. EPA's air quality efforts address both criteria air pollutants (CAPs) and hazardous air pollutants (HAPs). EPA regulations concerning CAPs and HAPs are presented in greater detail below.

Criteria Air Pollutants

The CAA required EPA to establish national ambient air quality standards (NAAQS) for six common air pollutants found throughout the U.S. referred to as criteria air pollutants. EPA has established primary and secondary NAAQS for the following criteria air pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable particulate matter with aerodynamic diameter of 10 micrometers or less (PM_{10}), fine particulate matter with aerodynamic diameter of 2.5 micrometers or less ($PM_{2.5}$), and lead. The NAAQS are shown in Table 3.1-1. The primary standards protect public health, and the secondary standards protect public welfare. The CAA also required each state to prepare a state implementation plan (SIP) for attaining and maintaining the NAAQS. The federal Clean Air Act Amendments of 1990 (CAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. California's SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. EPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments, and whether implementation will achieve air quality goals. If EPA determines a SIP to be inadequate, EPA may prepare a federal implementation plan that imposes additional control measures. If an approvable SIP is not submitted or implemented within the mandated time frame, sanctions may be applied to transportation funding and stationary air pollution sources in the air basin.

Table 3.1-1 National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California (CAAQS)[a,b]	National (NAAQS)[c]	
			Primary[b,d]	Secondary[b,e]
Ozone	1-hour	0.09 ppm (180 µg/m^3)	–[e]	Same as primary standard
	8-hour	0.07 ppm (137 µg/m^3)	0.070 ppm (137 µg/m^3)[f]	
Carbon monoxide (CO)	1-hour	20.0 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	Same as primary standard
	8-hour	9.0 ppm[g] (10 mg/m^3)	9 ppm (10 mg/m^3)	
Nitrogen dioxide (NO_2)	Annual arithmetic mean	0.03 ppm (57 µg/m^3)	53 ppb (100 µg/m^3)	Same as primary standard
	1-hour	0.18 ppm (339 µg/m^3)	100 ppb (188 µg/m^3)	—

Pollutant	Averaging Time	California (CAAQS)[a,b]	National (NAAQS)[c]	
			Primary[b,d]	Secondary[b,e]
Sulfur dioxide (SO_2)	24-hour	0.04 ppm (105 µg/m^3)	—	—
	3-hour	—	—	0.5 ppm (1300 µg/m^3)
	1-hour	0.25 ppm (655 µg/m^3)	75 ppb (196 µg/m^3)[h]	—
Respirable particulate matter (PM_{10})	Annual arithmetic mean	20 µg/m^3	—	Same as primary standard
	24-hour	50 µg/m^3	150 µg/m^3	
Fine particulate matter ($PM_{2.5}$)	Annual arithmetic mean	12 µg/m^3	12.0 µg/m^3	15.0 µg/m^3
	24-hour	—	35 µg/m^3	Same as primary standard
Lead [f]	Calendar quarter	—	—	—
	30-Day average	1.5 µg/m^3	—	—
	Rolling 3-Month Average	–	0.15 µg/m^3[i]	Same as primary standard
Hydrogen sulfide	1-hour	0.03 ppm (42 µg/m^3)	No national standards	
Sulfates	24-hour	25 µg/m^3		
Vinyl chloride [f]	24-hour	0.01 ppm (26 µg/m^3)		
Visibility-reducing particulate matter	8-hour	Extinction of 0.23 per km		

Notes: µg/m^3 = micrograms per cubic meter; km = kilometers; ppb = parts per billion; ppm = parts per million.

[a] California standards for ozone, CO, SO_2 (1- and 24-hour), NO_2, particulate matter, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[b] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25 degrees Celsius (°C) and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[c] National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. The PM_{10} 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. The $PM_{2.5}$ 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the EPA for further clarification and current federal policies.

[d] National primary standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

[e] National secondary standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[f] Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O_3 standards are not revoked and remain in effect for designated areas. Additionally, some areas may have certain continuing implementation obligations under the prior revoked 1-hour (1979) and 8-hour (1997) O_3 standards.

[g] The California Air Resources Board has identified lead and vinyl chloride as toxic air contaminants with no threshold of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[h] The previous SO_2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2) any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO_2 standards or is not meeting the requirements of a SIP call under the previous SO_2 standards (40 CFR 50.4(3)). A SIP call is an EPA action requiring a state to resubmit all or part of its SIP to demonstrate attainment of the required NAAQS.

[i] In areas designated nonattainment for the lead standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m_3 as a calendar quarter average) also remain in effect.

Source: California Air Resources Board (CARB) 2016a, EPA 2021a

Hazardous Air Pollutants and Toxic Air Contaminants

Toxic air contaminants (TACs), or in federal parlance, hazardous air pollutants (HAPs), are a defined set of airborne pollutants that may pose a present or potential hazard to human health. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

A wide range of sources, from industrial plants to motor vehicles, emit TACs. The health effects associated with TACs are quite diverse and generally are assessed locally, rather than regionally. TACs can cause long-term chronic health effects such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage; or short-term acute effects such as eye watering, respiratory irritation (a cough), runny nose, throat pain, and headaches.

For evaluation purposes, TACs are separated into carcinogens and non-carcinogens based on the nature of the health effects associated with exposure to the pollutant. Carcinogenic and non-carcinogenic TACs are assumed to have no threshold below which health impacts would not occur. Cancer risk from TACs is expressed as excess cancer cases per 1 million exposed individuals, typically over a lifetime of exposure.

EPA regulates HAPs through its National Emission Standards for Hazardous Air Pollutants. The standards for a particular source category require the maximum degree of emission reduction that the EPA determines to be achievable, which is known as the Maximum Achievable Control Technology—MACT standards. These standards are authorized by Section 112 of the 1970 CAA and the regulations are published in 40 CFR Parts 61 and 63.

STATE

The California Air Resources Board (CARB) is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA). The CCAA, which was adopted in 1988, required CARB to establish California ambient air quality standards (CAAQS) (Table 3.1-1).

Criteria Air Pollutants

CARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above-mentioned criteria air pollutants. In most cases the CAAQS are more stringent than the NAAQS. Differences in the standards are generally explained by the health effects studies considered during the standard-setting process and the interpretation of the studies. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals.

The CCAA requires that all local air districts in the state endeavor to attain and maintain the CAAQS by the earliest date practical. The CCAA specifies that local air districts should focus particular attention on reducing the emissions from stationary and transportation and area-wide emission sources. The CCAA also provides air districts with the authority to regulate indirect sources. CARB is responsible for monitoring the regulatory activity of all air districts within the state.

Toxic Air Contaminants

TACs in California are regulated primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807, Chapter 1047, Statutes of 1983) and the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588, Chapter 1252, Statutes of 1987). AB 1807 sets forth a formal procedure for CARB to designate substances as TACs. Research, public participation, and scientific peer review are required before CARB can designate a substance as a TAC. To date, CARB has identified more than 21 TACs and adopted EPA's list of HAPs as TACs. Most recently, particulate matter (PM) exhaust from diesel engines (diesel PM) was added to CARB's list of TACs.

After a TAC is identified, CARB may adopt an airborne toxics control measure for sources that emit that particular TAC. If a threshold exists for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If no threshold exists, the measure must incorporate Best Available Control Technology (BACT) for toxics to minimize emissions.

In addition, CARB has published its *Air Quality and Land Use Handbook* that provides guidance on land use compatibility with TAC sources (CARB 2005). The *Air Quality and Land Use Handbook* offers recommendations for siting sensitive receptors near TAC sources such as high-volume roadways, distribution centers, rail yards, ports, refineries, dry cleaners, gasoline stations, and industrial facilities.

The Hot Spots Act (AB 2588) requires that existing facilities that emit toxic substances above a specified level prepare an inventory of toxic emissions, prepare a risk assessment if emissions exceed prioritization thresholds, notify the public of significant risk levels, and prepare and implement risk reduction measures.

The Community Air Protection Program (AB 617 of 2017) aims to reduce exposure in communities most affected by air pollution from industries subject to the state's cap-and-trade program for greenhouse gas (GHG) emissions. AB 617 imposes a new state-mandated local program to address non-vehicular sources (e.g., refineries, manufacturing facilities) of criteria air pollutants and TACs. The program requires CARB to identify high-pollution areas and directs air districts to focus air quality improvement efforts through adoption of community emission reduction programs within these identified areas. Under existing stationary source permitting programs, air districts review individual sources and impose emissions limits on emitters based on BACT, pollutant type, and proximity to nearby existing land uses. In addition, the AB 617 program addresses the cumulative and additive nature of air pollutant health effects by requiring community-wide air quality assessment and emission reduction planning.

CARB has adopted diesel exhaust control measures and more stringent emissions standards for various transportation-related mobile sources of emissions, including transit buses, and off-road diesel equipment (e.g., tractors, generators). Over time, the replacement of older vehicles will result in a vehicle fleet that produces substantially lower levels of TACs than under current conditions. Mobile-source emissions of TACs (e.g., benzene, 1-3-butadiene, diesel PM) have been reduced significantly over the last decade and will be reduced further in California through a progression of regulatory measures (e.g., Low Emission Vehicle/Clean Fuels and Phase II reformulated gasoline regulations) and control technologies. Adopted regulations are also expected to continue to reduce formaldehyde emissions emitted by cars and light-duty trucks. As emissions are reduced, it is expected that risks associated with exposure to the emissions will also be reduced.

LOCAL

Sacramento Metropolitan Air Quality Management District

Criteria Air Pollutants

The Sacramento Metropolitan Air Quality Management District (SMAQMD) is the primary agency responsible for planning to meet NAAQS and CAAQS in Sacramento County. SMAQMD works with other local air districts in the Sacramento Valley Air Basin to maintain the region's portion of the SIP for ozone. The SIP is a compilation of plans and regulations that govern how the region and state will comply with the CAA requirements to attain and maintain the NAAQS for ozone. As of February 2022, the Sacramento region has been designated as a "serious" non-attainment area for the 2015 8-hour ozone standard (EPA 2022, 2014). The 2018 Sacramento Regional 2008 8-Hour Ozone Attainment and Further Reasonable Progress Plan was approved by CARB on November 16, 2017. The previous 2013 Update to the 8-Hour Ozone Attainment and Reasonable Further Progress Plan was approved and promulgated by EPA for the 1997 8-Hour Ozone Standard. EPA has not released a notice of approval and promulgation of the 2017 SIP (EPA 2021b).

SMAQMD has developed a set of guidelines for use by lead agencies when preparing environmental documents pursuant to CEQA. The guidelines contain thresholds of significance for criteria pollutants and TACs and make recommendations for conducting air quality analyses.

All construction activities are subject to adopted SMAQMD rules and regulations in effect at the time of construction. Specific rules applicable to the construction of the project may include but are not limited to the following:

- Rule 201: General Permit Requirements. Any project that includes the use of equipment capable of releasing emissions to the atmosphere may be required to obtain permit(s) from SMAQMD before equipment operation. The Applicant, developer, or operator of a project that includes a generator, boiler, or heater should contact SMAQMD

early to determine whether a permit is required, and to begin the permit application process. Portable construction equipment (e.g., generators, compressors, pile drivers, lighting equipment) with an internal combustion engine greater than 50 horsepower must have a SMAQMD permit or CARB portable equipment registration.

- Rule 202: New Source Review. The purpose of this rule is to provide for the issuance of authorities to construct and permits to operate for new and modified stationary air pollution sources and to provide mechanisms, including emission offsets, by which authorities to construct and permits for such sources may be granted without interfering with the attainment or maintenance of ambient air quality standards.
  - Part 301. Best Available Control Technology. This section requires applicants to apply BACT to any new or modified existing emissions units, except cargo carriers, for each emissions change of a regulated pollutant if that change results in a net increase in emissions of volatile organic compounds (VOCs), nitrogen oxides (NO_X), sulfur oxides (SO_X), PM_{10}, or $PM_{2.5}$ or results in an increase of more than 500 pounds per day of CO or 3.3 pounds per day of lead.
  - Part 302.1a: Emission Offset Requirements. This section requires applicants to provide emissions offsets for regulated air pollutants where the potential to emit that pollutant meets or exceeds the following levels.
    - VOCs meets or exceeds 5,000 pounds per quarter
    - NO_X meets or exceeds 5,000 pounds per quarter
    - SO_X meets or exceeds 13,650 pounds per quarter
    - PM_{10} meets or exceeds 7,300 pounds per quarter
    - $PM_{2.5}$ meets or exceeds 15 tons per year
    - CO meets or exceeds 49,500 pounds per quarter
- Rule 204: Emission Reduction Credits. The purpose of this rule is to provide an administrative mechanism for quantifying, adjusting, and certifying surplus emission reductions for later use as offsets pursuant to District, state or federal rules or regulations; or transfer to other sources as offsets pursuant to Rule 202, New Source Review.
- Rule 207: Federal Operating Permit. The purpose this rule is to establish an operating permitting system for "major" stationary sources consistent with the requirements of Title V of the United States Code and pursuant to 40 CFR Part 71. Stationary sources subject to the requirements of this rule are also required to comply with any other applicable federal, state, or SMAQMD orders, rules, and regulations, including requirements pertaining to prevention of significant deterioration pursuant to Rule 203, requirements to obtain an authority to construct pursuant to Rule 201, or applicable requirements under SMAQMD's new source review rule in the SIP.
- Rule 402: Nuisance. This rule prohibits persons from discharging from any source whatsoever such quantities of air contaminants or other materials which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause or have natural tendency to cause injury or damage to business or property.
- Rule 403: Fugitive Dust. The developer or contractor is required to control dust emissions from earthmoving activities or any other construction activity to prevent airborne dust from leaving the project site.
- Rule 442: Architectural Coatings. The purpose of this rule is to limit the emissions of volatile organic compounds from the use of architectural coatings supplied, sold, offered for sale, applied, solicited for application, or manufactured for use within Sacramento County.

In addition, if modeled construction-generated emissions for a project are not reduced to levels below SMAQMD's mass emission threshold of 85 pounds per day [lb/day] for NO_X, 80 lb/day or 14.6 tons per year [tons/year] for PM_{10}, and 82 lb/day or 15 tons/year for $PM_{2.5}$ after the standard construction mitigation is applied, then SMAQMD requires commitment to an off-site construction mitigation fee to purchase off-site emissions reductions.

Toxic Air Contaminants

At the local level, air districts may adopt and enforce CARB control measures for TACs. Under SMAQMD Rule 201 ("General Permit Requirements"), Rule 202 ("New Source Review"), and Rule 207 ("Federal Operating Permit"), all sources that possess the potential to emit TACs are required to obtain permits from SMAQMD. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including New Source Review standards and air toxics control measures. Pursuant to the New Source Review standards, SMAQMD provides a BACT Clearinghouse that contains a list of most recent BACT emission controls for the most common types of equipment. This clearinghouse list also includes specific emission controls, called Toxic Best Available Control Technology (T-BACT), for certain stationary sources of TACs. SMAQMD limits emissions and public exposure to TACs through a number of programs. SMAQMD permits TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors. Sensitive receptors are people or facilities that generally house people (e.g., schools and residences) that may experience adverse effects from unhealthy concentrations of air pollutants.

Odors

Although offensive odors rarely cause any physical harm, they can be unpleasant, leading to considerable stress among the public and often generating citizen complaints to local governments and SMAQMD. SMAQMD's Rule 402 ("Nuisance," discussed above) regulates odorous emissions.

Health Effects

SMAQMD has also issued *Guidance to Address the Friant Ranch Ruling for CEQA Projects in the Sac Metro Air District, Sacramento, California* (SMAQMD 2020b), which contains guidance on how to address the California Supreme Court decision in Sierra Club v. County of Fresno, 6 Cal.5th 502 (2018)—a court decision often referred to as the Friant Ranch decision. In that decision, the California Supreme Court held that an EIR should "relate the expected adverse air quality impacts to likely health consequences or explain in meaningful detail why it is not feasible at the time of drafting to provide such an analysis." The concern of the air quality impacts on public health largely focus on the impacts of adverse concentrations of criteria air pollutants, such as ozone precursors (i.e., reactive organic gases [ROG] and NO_X) and PM, as SMAQMD already has specific separate guidance for evaluating the health impacts of TACs. In following the Friant Ranch decision and to assist projects in determining the health impacts of criteria air pollutant concentrations, SMAQMD developed the "Minor Project Health Effects Tool" (Minor Project Tool). This tool estimates the level of health effects for an emissions source that results in emissions at or below criteria air pollutant and precursor thresholds of significance. The sole input for the Minor Project Tool is the project's geographical location, and the output of the Minor Project Tool is based on that location and modeled emissions at 82 pounds per day of NO_X, ROG, or PM, which are the highest thresholds of significance for each of these pollutants in the SMAQMD and neighboring air districts. Therefore, the Minor Project Tool is used for projects with emissions at or below air district thresholds of significance.

Sacramento County General Plan of 2005-2030

The following policies of the *Sacramento County General Plan of 2005-2030* (County of Sacramento 2020) are relevant to air quality within the project area:

Air Quality

- **Policy AQ-4.** Developments which meet or exceed thresholds of significance for ozone precursor pollutants, and/or Greenhouse Gases (GHG) as adopted by the SMAQMD, shall be deemed to have a significant environmental impact. An Air Quality Mitigation Plan and/or a Greenhouse Gas Reduction Plan shall be submitted to the County of Sacramento prior to project approval, subject to review and recommendation as to technical adequacy by the SMAQMD.
- **Policy AQ-19.** Require all feasible reductions in emissions for the operation of construction vehicles and equipment on major land development and roadway construction projects.
- **Policy AQ-22.** Reduce greenhouse gas emissions from County operations as well as private development.

3.1.2 Environmental Setting

The project area is located in the Sacramento Valley Air Basin (SVAB). The SVAB includes all of Butte, Colusa, Glenn, Sacramento, Shasta, Sutter, Tehama, Yolo, and Yuba counties and parts of Solano and Placer counties. The ambient concentrations of air pollutant emissions are determined by the amount of emissions released by the sources of air pollutants and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight. Therefore, existing air quality conditions in the area are determined by such natural factors as topography, meteorology, and climate, in addition to the amount of emissions released by existing air pollutant sources, as discussed separately below.

CLIMATE, METEOROLOGY, AND TOPOGRAPHY

The SVAB is a relatively flat area bordered by the Northeast Plateau to the north, Coast Ranges to the west, and the northern Sierra Nevada to the east. Air flows into the SVAB through the Carquinez Strait, the only breach in the western mountain barrier, and moves across the Sacramento River–San Joaquin River Delta (Delta) from the San Francisco Bay area.

The Mediterranean climate type of the SVAB is characterized by hot, dry summers and cool, rainy winters. During the summer, daily temperatures range from 50 degrees Fahrenheit (°F) to more than 100°F. The inland location and surrounding mountains shelter the area from much of the ocean breezes that keep the coastal regions moderate in temperature. Most precipitation in the area results from air masses that move in from the Pacific Ocean, usually from the west or northwest, during the winter months. More than half the total annual precipitation falls during the winter rainy season (November through February); the average winter temperature is a moderate 49°F. Also, characteristic of SVAB winters are periods of dense and persistent low-level fog, which are most prevalent between storms. The prevailing winds are moderate in speed and vary from moisture-laden breezes from the south to dry land flows from the north.

The mountains surrounding the SVAB create a barrier to airflow, which leads to the entrapment of air pollutants when meteorological conditions are unfavorable for transport and dilution. The highest frequency of poor air movement occurs in the fall and winter when high-pressure cells are present over the SVAB. The lack of surface wind during these periods, combined with the reduced vertical flow caused by a decline in surface heating, reduces the influx of air and leads to the concentration of air pollutants under stable metrological conditions. Surface concentrations of air pollutant emissions are highest when these conditions occur in combination with agricultural burning activities or with temperature inversions, which hamper dispersion by creating a ceiling over the area and trapping air pollutants near the ground.

May through October is ozone season in the SVAB. This period is characterized by poor air movement in the mornings with the arrival of the Delta sea breeze from the southwest in the afternoons. In addition, longer daylight hours provide a plentiful amount of sunlight to fuel photochemical reactions between ROG and NO_X, which result in ozone formation. Typically, the Delta breeze transports air pollutants northward out of the SVAB; however, a phenomenon known as the Schultz Eddy prevents this from occurring during approximately half of the time from July to September. The Schultz Eddy phenomenon causes the wind to shift southward and blow air pollutants back into the SVAB. This phenomenon exacerbates the concentration of air pollutant emissions in the area and contributes to the area violating the ambient-air quality standards.

The local meteorology of the project area and surrounding area is represented by measurements recorded at the Western Regional Climate Center Sacramento 5 ESE station. The normal annual precipitation is approximately 18 inches. January temperatures range from a normal minimum of 40°F to a normal maximum of 54°F. July temperatures range from a normal minimum of 59°F to a normal maximum of 92°F (WRCC 2016). The predominant wind direction is from the south (WRCC 2022).

CRITERIA AIR POLLUTANTS

Concentrations of criteria air pollutants are used to indicate the quality of the ambient air. A brief description of key criteria air pollutants in the SVAB is provided below. Emission source types and health effects are summarized in Table 3.1-2. Sacramento County's attainment status for the CAAQS and the NAAQS are shown in Table 3.1-3.

Ozone

Ozone is a photochemical oxidant (a substance whose oxygen combines chemically with another substance in the presence of sunlight) and the primary component of smog. Ozone is not directly emitted into the air but is formed through complex chemical reactions between precursor emissions of ROG and NO_X in the presence of sunlight. ROG are volatile organic compounds that are photochemically reactive. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. NO_X are a group of gaseous compounds of nitrogen and oxygen that result from the combustion of fuels.

Emissions of the ozone precursors ROG and NO_X have decreased over the past several years because of more stringent motor vehicle standards and cleaner burning fuels. Emissions of ROG and NO_X decreased from 2000 to 2010 and are projected to continue decreasing from 2010 to 2035 (CARB 2013).

It should be noted that, although many regulations and modeling tools use the term VOC, the shorthand "ROG," which stands for reactive organic gases, will be used consistently instead of VOC throughout this analysis. This terminology convention is applied for several reasons: 1) the modeling software used to inform this analysis directly calculates ROG in place of VOC, 2) there are only minor differences between the definitions of VOC and ROG, and 3) the public is more likely to understand this analysis if consistent terminology is applied throughout (CARB 2009).

Nitrogen Dioxide

NO_2 is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2. The combined emissions of NO and NO_2 are referred to as NO_X and are reported as equivalent NO_2. Because NO_2 is formed and depleted by reactions associated with photochemical smog (ozone), the NO_2 concentration in a particular geographical area may not be representative of the local sources of NO_X emissions (EPA 2008, 2021c).

Particulate Matter

Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less is referred to as PM_{10}. PM_{10} consists of particulate matter emitted directly into the air, such as fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires and natural windblown dust, and particulate matter formed in the atmosphere by reaction of gaseous precursors (CARB 2013). PM_{10} emissions in the SVAB are dominated by emissions from area sources, primarily fugitive dust from vehicle travel on unpaved and paved roads, farming operations, construction and demolition, and particles from residential fuel combustion. Direct emissions of PM_{10} are projected to remain relatively constant through 2035. Fine particulate matter ($PM_{2.5}$) includes a subgroup of smaller particles that have an aerodynamic diameter of 2.5 micrometers or less. Direct emissions of $PM_{2.5}$ have steadily declined in the SVAB between 2000 and 2010 and then are projected to increase very slightly through 2035. Emissions of $PM_{2.5}$ in the SVAB are dominated by the same sources as emissions of PM_{10} (CARB 2013).

Carbon Monoxide

CO is usually formed as the result of the incomplete combustion of fuels. The single largest source of CO is motor vehicle engines; the highest emissions occur during low travel speeds, stop-and-go driving, cold starts, and hard acceleration. Exposure to high concentrations of CO reduces the oxygen-carrying capacity of the blood and can cause headaches, nausea, dizziness, and fatigue; impair central nervous system function; and induce angina (chest pain) in persons with serious heart disease. Very high levels of CO can be fatal.

Sulfur Dioxide

SO_2 is a combustion product of sulfur or sulfur-containing fuels such as coal and diesel. SO2 is also a precursor to the formation of particulate matter, atmospheric sulfate, and atmospheric sulfuric acid formation that could precipitate downwind as acid rain.

Lead

Leaded gasoline, lead-based paint, smelters (metal refineries), and the manufacture of lead storage batteries have been the primary sources of lead released into the atmosphere, with lead levels in the air decreasing substantially since leaded gasoline was complete phased out in the United States by 1996. Lead has a range of adverse reproductive and neurotoxic health effects, including neurological, endocrine, and cardiovascular effects.

Table 3.1-2 Sources and Health Effects of Criteria Air Pollutants

Pollutant	Sources	Acute[1] Health Effects	Chronic[2] Health Effects
Ozone	secondary pollutant resulting from reaction of ROG and NO_X in presence of sunlight. ROG emissions result from incomplete combustion and evaporation of chemical solvents and fuels; NO_X results from the combustion of fuels	increased respiration and pulmonary resistance; cough, pain, shortness of breath, lung inflammation	permeability of respiratory epithelia, possibility of permanent lung impairment
Carbon monoxide (CO)	incomplete combustion of fuels; motor vehicle exhaust	headache, dizziness, fatigue, nausea, vomiting, death	permanent heart and brain damage
Nitrogen dioxide (NO_2)	combustion devices; e.g., boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines	coughing, difficulty breathing, vomiting, headache, eye irritation, chemical pneumonitis or pulmonary edema; breathing abnormalities, cough, cyanosis, chest pain, rapid heartbeat, death	chronic bronchitis, decreased lung function
Sulfur dioxide (SO_2)	coal and oil combustion, steel mills, refineries, and pulp and paper mills	Irritation of upper respiratory tract, increased asthma symptoms	Insufficient evidence linking SO_2 exposure to chronic health impacts
Respirable particulate matter (PM_{10}), Fine particulate matter ($PM_{2.5}$)	fugitive dust, soot, smoke, mobile and stationary sources, construction, fires and natural windblown dust, and formation in the atmosphere by condensation and/or transformation of SO_2 and ROG	breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, premature death	alterations to the immune system, carcinogenesis
Lead	metal processing	reproductive/ developmental effects (fetuses and children)	numerous effects including neurological, endocrine, and cardiovascular effects

Notes: NO_X = oxides of nitrogen; ROG = reactive organic gases.

[1] "Acute" refers to effects of short-term exposures to criteria air pollutants, usually at fairly high concentrations.

[2] "Chronic" refers to effects of long-term exposures to criteria air pollutants, usually at lower, ambient concentrations.

Sources: EPA 2016

Attainment Status

As shown in Table 3.1-3, Sacramento County is designated as a nonattainment for ozone with respect to both the NAAQS (8-hour standard) and CAAQS (1-hour Classification and 8-hour standard), nonattainment for PM_{10} with respect to the CAAQS, and nonattainment for $PM_{2.5}$ with respect to the NAAQS.

Table 3.1-3 Attainment Status Designations for Sacramento County

Pollutant	National Ambient Air Quality Standard	California Ambient Air Quality Standard
Ozone	Attainment (1-hour)[1]	Nonattainment (1-hour) Classification-Serious[2]
	Nonattainment (8-hour)[3] Classification=Severe	Nonattainment (8-hour)
	Nonattainment (8-hour)[4] Classification=Serious	Nonattainment (8-hour)

Pollutant	National Ambient Air Quality Standard	California Ambient Air Quality Standard
Respirable particulate matter (PM_{10})	Attainment (24-hour)	Nonattainment (24-hour)
	Attainment (24-hour)	Nonattainment (Annual)
Fine particulate matter ($PM_{2.5}$)	Nonattainment (24-hour)	(No State Standard for 24-Hour)
	Attainment (Annual)	Attainment (Annual)
Carbon monoxide (CO)	Attainment (1-hour)	Attainment (1-hour)
	Attainment (8-hour)	Attainment (8-hour)
Nitrogen dioxide (NO_2)	Unclassified/Attainment (1-hour)	Attainment (1-hour)
	Unclassified/Attainment (Annual)	Attainment (Annual)
Sulfur dioxide (SO_2)[5]	(Attainment Pending) (1-Hour)	Attainment (1-hour)
	(Attainment Pending) (1-Hour)	Attainment (24-hour)
Lead (Particulate)	Attainment (3-month rolling avg.)	Attainment (30 day average)
Hydrogen Sulfide	No Federal Standard	Unclassified (1-hour)
Sulfates	No Federal Standard	Attainment (24-hour)
Visibly Reducing Particles	No Federal Standard	Unclassified (8-hour)
Vinyl Chloride	No Federal Standard	Unclassified (24-hour)

[1] Air Quality meets federal 1-hour Ozone standard (77 FR 64036). EPA revoked this standard, but some associated requirements still apply. SMAQMD attained the standard in 2009. SMAQMD has requested EPA recognize attainment to fulfill the requirements.

[2] Per Health and Safety Code (HSC) § 40921.5(c), the classification is based on 1989 – 1991 data, and therefore does not change.

[3] 2008 Standard.

[4] 2015 Standard.

[5] 2010 Standard.

Source: EPA 2022 and CARB 2019a.

TOXIC AIR CONTAMINANTS

According to the *California Almanac of Emissions and Air Quality* (CARB 2013), most of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being diesel PM. Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emissions control system is being used. Unlike the other TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. However, CARB has made preliminary concentration estimates based on a PM exposure method. This method uses the CARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of diesel PM. In addition to diesel PM, the TACs for which data are available that pose the greatest existing ambient risk in California are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene.

Diesel PM poses the greatest health risk among these 10 TACs mentioned. Based on receptor modeling techniques, Overall, levels of most TACs, except para-dichlorobenzene and formaldehyde, have decreased since 1990 (CARB 2013).

ODORS

Odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals can smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; an odor that is offensive to one person may be perfectly acceptable to another (e.g., fast food restaurant). It is important to also note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity. Odor sources of concern include wastewater treatment plants, sanitary landfills, composting facilities, recycling facilities, petroleum refineries, chemical manufacturing plants, painting operations, rendering plants, and food packaging plants (SMAQMD 2016). The project would install and operate a cogeneration facility at the existing Sacramento Regional Wastewater Treatment Plant (SRWTP), generally considered an odor source by SMAQMD as a result of onsite treatment processes.

SENSITIVE RECEPTORS

Sensitive receptors are generally considered to include those land uses where exposure to pollutants could result in health-related risks to sensitive individuals, such as children or the elderly. Residential dwellings, schools, hospitals, playgrounds, and similar facilities are of primary concern because of the presence of individuals particularly sensitive to pollutants and/or the potential for increased and prolonged exposure of individuals to pollutants.

The SRWTP facility where the project area is located is an area of Sacramento County that is buffered from urban development. There are no residential land uses, schools, or other sensitive receptors adjacent to the project area. The nearest residential area lies east of Franklin Boulevard, which is approximately 4,740 feet away.

3.1.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

Project criteria emissions were assessed for local and regional impacts, as well as impacts from TACs and odors in accordance with SMAQMD-recommended methodologies. The project's emissions are compared to SMAQMD-adopted thresholds.

Construction and operational emissions of criteria air pollutants and precursors were calculated using a combination of the California Emissions Estimator Model (CalEEMod) version 2020.4.0 computer program, as recommended by SMAQMD, and off-model calculations using available project-specific information. CalEEMod modeling was based on project-specific information (e.g., land use type, building square footage) where available; reasonable assumptions based on typical construction activities; and default values in CalEEMod that are based on the project's location and land use type.

Construction

As stated in Chapter 2, "Project Description," construction of the project is anticipated to begin in summer of 2024 and last between 18 and 24 months. Project construction would result in temporary emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ associated with the use of off-road equipment, haul trucks delivering equipment and materials, and worker commute trips. Fugitive PM_{10} and $PM_{2.5}$ dust emissions would be associated primarily with site preparation and earthwork and vary as a function of soil silt content, soil moisture, wind speed, acreage of disturbance, and travel by off-road equipment and delivery trucks on unpaved surfaces. Per SMAQMD construction BMPs and Rule 403, unpaved areas are assumed to be watered twice per day. Exhaust from off-road equipment, haul trucks, and construction worker vehicles would also contain PM_{10} and $PM_{2.5}$. Emissions of ozone precursors, ROG, and NO_X, would primarily be associated with construction equipment and on-road mobile exhaust. Construction activities associated with the project would likely require the use of equipment such as excavators, graders, dozers, backhoes, trenchers, forklifts, compactors, graders, welding machines, haul trucks, cement trucks, and paving equipment.

Emissions associated with construction were estimated using CalEEMod 2020.4.0. Modeling was based on project-specific information where available, assumptions based on typical construction activities, and default values in CalEEMod that are based on the project's location and land use type. Worst-case maximum daily construction emissions were estimated based on anticipated construction activities that would occur simultaneously. For detailed assumptions and modeling inputs, refer to Appendix B.

Operations

To understand the air quality impacts that would occur because of the project, this analysis evaluates the net change in emissions between existing and project conditions. Full calculations are provided in Appendix B.

This analysis only evaluates existing emissions sources that would change with implementation of the project (i.e., boilers, flares). Sources that would remain unchanged between existing and project conditions, such as wastewater treatment process emissions, were not evaluated. Daily and annual emissions from existing boilers were calculated using the digester gas and natural gas fuel use records for 2021, available from required permit reports submitted to SMAQMD (Ross, pers. comm. 2022). Flare emissions were calculated from the amount of digester gas sent to flares, assumed to be 18 percent of total digester gas production (Ross, pers. comm., 2022). The annual flared digester gas was multiplied by the emission factors shown in the flare permits, which assume that BACT is applied (SMAQMD 2019). Calculations of total existing on-site combustion of digester and natural gas and related emissions are provided in Appendix B.

The relevant existing emissions were compared with emissions from the proposed project. Maximum daily and annual emissions of criteria air pollutants and precursors from the proposed project were estimated using emission rates for the combined heat and power (CHP) engines and additional auxiliary emissions (e.g., new worker commute activity and area source emissions) calculated from CalEEMod modeling. For the purposes of this analysis and to provide the most conservative assessment, the emissions rates assume five 3-MW Jenbacher JMS 620 engines would run at full capacity and combust 100 percent of the average annual digester gas generated by the facility (Regional San 2021: Table 4-1). In addition, to meet the specification of the engine, 10 percent of fuel used by the engines is assumed to come from natural gas. This assumption is based on South Coast Air Quality Management District's BACT determination, which allows for up to 10 percent natural gas blending in engines that utilize biogas; SMAQMD does not currently have an equivalent BACT determination for biogas engines (Regional San 2021:5-2). The emissions analysis assumes that the proposed engines will utilize BACT and applies BACT emission factors for both digester gas and natural gas combustion in the CHP engines to meet BACT determination standards (Regional San 2021). Although no emissions from flares or standby boilers are assumed in this scenario, this analysis represents the highest emissions scenario for the proposed project. As such, the emissions estimates presented in this analysis are conservatively high.

In addition to the modeled project emissions, the analysis also accounts for ROG and NO_X offsets required under the facility's air permit. Under Rule 202, a permit applicant is required to provide emission offsets for a regulated air pollutant where the potential to emit that pollutant meets or exceeds levels as defined in Rule 202 part 302.1a (SMAQMD 2012). The project's worst-case scenario would result in the exceedance of the ROG and NO_X offset thresholds. As such, Regional San plans to purchase 18 tons of ROG and 22 tons of NO_X offsets per year for the proposed project operations, although the required offset values may be different (higher or lower) depending on SMAQMD's calculations during the permitting process (Regional San 2021:Table 4-8). These offset totals represent the base values, before the application of any ratios required by Rule 202, and the purchased values would account for those ratios. These offsets are applied to project operational emissions as a reduction in ROG and NOx emissions.

Under the project, the SRWTP would no longer utilize steam-generated heat currently provided by the adjacent Sacramento Municipal Utility District (SMUD) Carson Cogeneration (Cogen) Plant to facilitate on-site digesters. However, Regional San does not have jurisdiction over operations at Carson Cogen and SMUD may or may not change their operations at Carson Cogen as a result of the proposed project. Thus, any emissions changes at Carson Cogen are excluded from this analysis and no emissions reductions are attributed to future operations at Carson Cogen.

The emissions from additional worker commute and area source emissions from non-engine operation of the new facility were estimated using CalEEMod 2020.4.0. Modeling assumed 10 additional workers and used model default

assumptions for the commute trip rates and lengths. Area source emissions were estimated based on model default assumptions on occasional maintenance of architectural coating and the use of consumer products, such as cleaners, for a 15,000-square foot general light industry land use. No landscaping activity or related emissions are assumed to occur under the project.

The Minor Project Tool was used to evaluate potential health effects of mass emissions of ozone precursors and PM associated with implementation of the project. The model estimates the health effects at a given project assuming a project emits pollutants at the SMAQMD threshold for ROG, NO_X, and $PM_{2.5}$ (i.e., 82 pounds per day). The outputs in Appendix B reflect the potential increase in premature deaths over the background health incidence rate of each health endpoint in the region.

Project-generated TAC emissions and odors were assessed in accordance with methodologies recommended by CARB and SMAQMD.

THRESHOLDS OF SIGNIFICANCE

Per Appendix G of the CEQA Guidelines and SMAQMD recommendations, the project's impact to air quality is considered significant if it would do any of the following:

- conflict with or obstruct implementation of the applicable air quality plan;
- construction-generated criteria air pollutant or precursor emissions to exceed SMAQMD-recommended thresholds of 85 lb/day for NO_X, 0 lb/day of PM_{10}, and 0 lb/day of $PM_{2.5}$. As noted in SMAQMD's recommended significance thresholds, if all feasible "Best Management Practices" (BMPs), as defined by SMAQMD, for controlling construction emissions are applied, the applicable threshold would be 80 lb/day and 14.6 tons/year for PM_{10}, and 82 lb/day and 15 tons/year for $PM_{2.5}$;
- a net increase in long-term operational criteria air pollutant or precursor emissions that exceed the SMAQMD-recommended thresholds of 65 lb/day for ROG and NO_X, 0 lb/day of PM_{10}, and 0 lb/day of $PM_{2.5}$. If all feasible BMPs, as defined by SMAQMD, for controlling operational phase emissions are applied, the applicable threshold would be 80 lb/day and 14.6 tons/year for PM_{10}, and 82 lb/day and 15 tons/year for $PM_{2.5}$;
- expose sensitive receptors to TAC concentrations resulting in a maximum incremental cancer risk of 10 in 1 million (for carcinogenic risk) or a chronic and/or acute hazard index of 1.0 or greater (for noncancer effects); and/or
- create objectionable odors affecting a substantial number of people.

ISSUES NOT DISCUSSED FURTHER

CO, SO_2, Lead, Sulfates, Visibility Reducing Particles, H_2S, and Vinyl Chloride Emissions

With respect to CO, SO_2, lead, sulfates, visibility reducing particles, H_2S, and vinyl chloride, the project would be required to meet all SMAQMD requirements established through the stationary source permitting process. All areas of the SVAB have been in attainment for these pollutants for multiple years, and as a result, SMAQMD has concentration-based thresholds, instead of mass emission thresholds. These concentration-based thresholds are based on the AAQS. As an air pollution control district, SMAQMD is responsible for issuing permits to reduce air pollution and maintain (or attain) the AAQS (SMAQMD 2020a). Through the stationary source permitting process, SMAQMD evaluates the potential emissions from all permitted sources and allocates permits, including emission limits to each permit, such that the regional concentrations do not exceed the AAQS.

Additionally, localized mobile-source CO are not included in this analysis. The project would only result in an increase of 10 additional workers resulting in a negligible increase in mobile-source emissions. As discussed in SMAQMD's CEQA Guide, CO emissions are "predominately generated in the form of mobile-source exhaust from vehicle trips. These vehicle trips occur throughout a paved network of roads, and therefore, associated exhaust emissions of [CO] are not generated in a single location where high concentrations could be formed" (SMAQMD 2020b:4-7). A CO impact is not anticipated unless an intersection experiences more than 31,600 vehicles per hour. According to the City

of Elk Grove Traffic Monitoring Program, the highest peak hour volume at any intersection in the city is 3,835 vehicles per hour (intersection of Laguna Boulevard/Big Horn Boulevard (City of Elk Grove 2020). Considering the project would only result in an increase in commute trips related to 10 additional workers, the number of vehicles traveling through intersections fall well short of the 31,600-vehicles-per-hour threshold.

Because the project's emissions would be required to meet the AAQS through the permitting process and the project additional vehicle trips would be well below SMAQMD's traffic flow threshold, emissions of CO, SO_2, lead, sulfates, visibility reducing particles, H_2S, and vinyl chloride from the project are not anticipated to exceed SMAQMD's thresholds and therefore are not discussed further in this analysis.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.1-1: Conflict with or Obstruct Implementation of an Applicable Air Quality Plan

Implementation of the project would not increase projected growth beyond the County's 2030 General Plan, which considered the growth in the unincorporated County in which the project is located. Because the 2030 General Plan was used to inform the projected growth in the air quality attainment plans (AQAPs), the project would be consistent with the AQAPs. The project is consistent with the AQAP and this impact would be **less than significant**.

The SVAB is currently designated as nonattainment for ozone and PM_{10}. SMAQMD has developed AQAPs (i.e., Sacramento Regional 2008 NAAQS 8-Hour Ozone Attainment and Reasonable Further Progress Plan, Second 10-Year PM_{10} Maintenance Plan) that present comprehensive strategies to reduce volatile organic compounds, NO_X, PM_{10}, and $PM_{2.5}$ emissions from stationary, area, mobile, and indirect sources to achieve attainment status of the NAAQS and CAAQS. The emission inventories used to develop the applicable AQAPs are based primarily on projected population and employment growth and associated vehicle miles travelled (VMT) for the SVAB. This growth is estimated for the region, based in part, on the planned growth identified in regional and local land use plans such as general plans or community plans. Therefore, projects that would result in increases in population or employment growth beyond that projected in regional or local plans could result in increases in VMT above that forecasted in the attainment plans, further resulting in mobile source emissions that could conflict with or obstruct implementation of the AQAP. Increases in VMT beyond that projected in the County's General Plan, SACOG's regional VMT modeling, and SMAQMD regional AQAPs generally would be considered to have a significant adverse incremental effect on the SVAB's ability to attain CAAQS and NAAQS for all criteria air pollutants.

The proposed project would not result in any increases in population or housing and only a minor increase in employment and would therefore not increase population or employment beyond those projected in the General Plans of local jurisdictions within Regional San's service area. The project would also not increase wastewater treatment capacity that would support an increased population.

To achieve attainment status of NAAQS and CAAQS, strategies in the AQAPs include the adoption of rules and regulations; enhancement of CEQA participation; implementation of a new and modified indirect source review program; adoption of local air quality plans; and stationary, mobile, and indirect source control measures. Because the project is consistent with the land uses of the County's General Plan, the project would not conflict with the implementation of the SMAQMD AQAP for long-range air quality planning and would not facilitate further growth. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.1-2: Cause Construction-Generated Criteria Air Pollutant or Precursor Emissions to Exceed SMAQMD-Recommended Thresholds

Construction of the project would result in modest emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$. Additionally, SMAQMD Basic Construction Emission Control Practices would be implemented during construction of the project, which would effectively control emissions levels. Therefore, construction-related emissions from the project would not exceed SMAQMD's thresholds of significance. This impact would be **less than significant.**

Project construction activities would result in emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ from site preparation (e.g., excavation, clearing), off-road equipment, material delivery, worker commute trips, building construction, utility demolition, asphalt paving, and application of architectural coatings. Fugitive dust emissions of PM_{10} and $PM_{2.5}$ are associated primarily with site preparation and grading and vary as a function of soil silt content, soil moisture, wind speed, acreage of disturbance, and VMT on and off the site. Emissions of ozone precursors, ROG, and NO_X are associated primarily with construction equipment and on-road mobile exhaust. Paving and the application of architectural coatings result in off-gas emissions of ROG. PM_{10} and $PM_{2.5}$ are also contained in vehicle exhaust.

Table 3.1-4 summarizes the modeled maximum daily and annual emissions from construction activities.

Table 3.1-4 Summary of Criteria Air Pollutants and Precursors Emitted during Project Construction

	Maximum Daily Emissions (lb/day)				Maximum Annual Emissions (tons/year)	
	ROG	NO_X	PM_{10} (Exhaust/Fugitive)	$PM_{2.5}$ (Exhaust/Fugitive)	PM_{10} (Exhaust/Fugitive)	$PM_{2.5}$ (Exhaust/Fugitive)
Construction-Related Emissions	7.9	33.1	21.4	11.6	0.07	0.06
SMAQMD Threshold of Significance (with BACT and BMPs applied)[1]	**No Threshold**	**85**	**80**	**82**	**14.6**	**15**

Notes: lb/day = pounds per day; ROG = reactive organic gases; NO_X = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter; SMAQMD = Sacramento Metropolitan Air Quality Management District; BACT = Best Available Control Technologies; BMP = Best Management Practices

See Appendix B for detailed modeling and calculations.

[1] The PM_{10} and $PM_{2.5}$ threshold is zero for projects that do not apply BACT or BMPs.

Source: Modeled by Ascent Environmental in 2022.

As shown in Table 3.1-4, project construction would not result in emissions of ROG or NO_X that exceed applicable mass emission thresholds. The applicable thresholds were based on the project's commitment to implementing SMAQMD's Basic Construction Emission Control Practices for controlling fugitive PM_{10} and $PM_{2.5}$ dust emissions and limiting exhaust emissions from construction equipment that would be implemented during construction. These measures would include the following:

- Water all exposed surfaces at least two times daily. Exposed surfaces include, but are not limited to, soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
- Limit vehicle speed on unpaved roads to 15 miles per hour.
- Cover or maintain at least 2 feet of free board on haul trucks transporting soil, sand, or other loose material on the site.
- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day.
- All roadways, driveways, sidewalks, and parking lots to be paved will be completed as soon as possible. In addition, building pads will be laid as soon as possible after grading unless seeding or soil binders are used.

- Minimize idling time either by shutting equipment off when not in use or reducing idling time to 5 minutes (required by California Code of Regulations Title 13, Sections 2449[d][3] and 2485). Provide clear signage that posts this requirement for workers at the entrances to the site.
- Maintain all construction equipment in proper working condition according to manufacturer's specifications. Equipment will be checked by a certified mechanic and determined to be running in proper condition before it is operated.

For projects that do not implement these practices, SMAQMD has a zero threshold for both PM_{10} and $PM_{2.5}$ for construction activities.

The project's emissions of all pollutants, including PM_{10} and $PM_{2.5,}$ is modest in relation to the applicable thresholds. With incorporation of SMAQMD-recommended Basic Construction Emission Control Practices, emissions of PM_{10} and $PM_{2.5}$ associated with construction activities would not contribute localized concentrations of these pollutants that exceed applicable NAAQS and CAAQS. Therefore, construction-related emissions would not conflict with air quality planning efforts in the region or result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment with respect to the NAAQS or CAAQS. This impact would be **less than significant.**

Mitigation Measures

No mitigation is required for this impact.

Impact 3.1-3: Result in a Net Increase in Long-Term Operational Criteria Air Pollutant and Precursor Emissions that Exceed SMAQMD-Recommended Thresholds

Implementation of the project would result in long-term operational emissions that are not expected to exceed the SMAQMD's thresholds of significance. Thus, operation-generated emissions would not contribute substantially to the nonattainment status of SVAB. Additionally, examination of the project using SMAQMD's Minor Project Health Effects Tool indicates that the project would not result in sizeable health effects in the region. This impact would be **less than significant**.

Project operation would result in the generation of long-term operational emissions of ROG, NO_X, and particulate matter (e.g., PM_{10} and $PM_{2.5}$) as a result of stationary, mobile, and area-wide sources. Mobile-source emissions of criteria air pollutants and precursors would result from vehicle trips generated by new employee commute trips. Area source emissions would consist of ROG emissions generated by periodic application of architectural coating and on-site use of consumer products (e.g., cleaners). Stationary source emissions from the CHP engines would result in long-term operational emissions, however, the project is subject to the permitting requirements set forth by SMAQMD, which would require that all emissions standards are met. The project would also eliminate emissions from standby boilers and reduce emissions from existing flares. However, the reduced emissions from these sources are not quantified as they are variable from year to year and are only operated on an as-needed basis. Thus, as explained under Methodology, only emissions from CHP engines are evaluated for stationary sources under this impact. ROG and NO_X offsets required under the air permit are also included in this analysis.

To reduce operational PM emissions for projects, SMAQMD recommends projects to implement operational BACT or BMPs, which also allows for projects to apply a non-zero threshold of significance. With respect to the main stationary sources of the project, the emission rates for criteria air pollutants and precursors emitted by CHP engines are dictated by the requirement to apply BACT pursuant to SMAQMD Rule 202—New Source Review, Section 301. As discussed under Methodology, the emissions estimates for the project apply BACT emission rates. Thus, the project would comply with SMAQMD's BMPs for PM reduction through implementation of BACT.

Project operation would result in the following actions:

- decommissioning three on-site boilers at the SRWTP,
- halting delivery of digester gas to SMUD,

- reducing combustion of digester gas in flares from 18 percent of total production to near zero, and
- diverting all digester gas production to cogeneration engines that would use a 9:1 blend of digester gas to natural gas to generate electricity for the SRWTP.

The project would eliminate most of the emissions from the combustion of digester gas and natural gas in on-site boilers and flares and would, instead, emit emissions from the combustion of digester gas and natural gas in cogeneration engines. Under the worst case project scenario, the new stationary sources (i.e., cogeneration engines) would emit 9,005 and 11,393 pounds per quarter of VOCs (or ROG) and NOx, respectively, which would exceed SMAQMD's offset threshold of 5,000 pounds per quarter for each of these pollutants (Regional San 2021:Table 4-8). However, Regional San proposes to purchase ROG and NO_X offsets for the project, which are required as a Condition of Approval and Permit to Operate because the facility would exceed the offset thresholds for these pollutants as indicated in SMAQMD Rule 202 Part 302.1a.

The comparison of the project's emissions to existing emissions excludes any emissions from the combustion of digester gas delivered to SMUD, which would occur offsite and is not under the jurisdiction of Regional San.

Table 3.1-5 summarizes the maximum daily and annual operational emissions of criteria air pollutants and ozone precursors at full buildout for emissions sources that would be affected by the project. The detailed modeling calculations, including informational results for CO and SO_2, are shown in Appendix B.

Table 3.1-5 Unmitigated Criteria Air Pollutant and Precursor Emissions Associated with Project Buildout Operations (2045)

Source	ROG	NO_X	PM_{10}		$PM_{2.5}$	
	lb/day	lb/day	lb/day	tpy	lb/day	tpy
Existing						
Boilers[1]	0.2	2.3	0.9	0.2	0.9	0.2
Flares[1]	6.4	12.9	2.9	0.5	2.9	0.5
Total	**6.6**	**15.2**	**3.8**	**0.7**	**3.8**	**0.7**
Project						
CHP Engines[2]	97.9	123.8	77.5	14.1	77.5	14.1
Area[3]	0.4	0.0	0.0	0.0	0.0	0.0
Mobile[3]	0.1	0.1	0.1	0.0	>0.1	0.0
Required Permit Offsets[4]	-97	-118	0	0	0	0
Total	**0.9**	**6.0**	**77.6**	**14.1**	**77.5**	**14.1**
Net Change						
Stationary Sources (CHP Engines/Boilers/Flares)	91.3	108.7	73.7	13.5	73.7	13.5
Area	0.4	0.0	0.0	0.0	0.0	0.0
Mobile	0.1	0.1	0.1	0.0	>0.1	0.0
Required Permit Offsets[4]	-97	-118	0	0	0	0
Total	-5.7	-9.1	73.8	13.5	73.7	13.5
SMAQMD Thresholds of Significance	**65**	**65**	**80[5]**	**14.6[5]**	**82[6]**	**15[6]**

Notes: ROG = reactive organic gas; NO_X = oxides of nitrogen; PM_{10} = respirable particulate matter; lb/day = pounds per day; SMAQMD = Sacramento Metropolitan Air Quality Management District; CHP = combined heat and power

[1] Emissions calculated based on actual annual combustion of natural gas and digester gas in 2021 (Ross, pers. comm. 2022.)

[2] Based on engines running at full capacity (100 percent annual average digester gas + natural gas). No flare or boiler operation.

[3] Area sources include occasional maintenance of architectural coating and the use of consumer products, such as cleaners. Mobile sources from the project represent additional emissions from new employee commute.

[4] Based on annual offsets of 18 tons of ROG and 22 tons of NO_X divided by 365 days per year.

[5] If all feasible BACT/BMPs are applied, then 80 lb/day and 14.6 tpy.

[6] If all feasible BACT/BMPs are applied, then 82 lb/day and 15 tpy.

See Appendix B for detailed calculations.

Source: Modeled by Ascent Environmental in 2022

As shown in Table 3.1-5, the net change in operational emissions of criteria air pollutants or precursors associated with the project would not exceed the daily or annual mass emission thresholds adopted by SMAQMD. The majority of ROG and NO_X emissions would be reduced by the required permit offsets, even resulting in a net reduction in ROG and NO_X due to the offsets exceeding the estimated project emissions. Modeling estimates that the project would result in a net increase in daily PM_{10} and $PM_{2.5}$ emissions by 73.8 and 73.7 lbs. per day, respectively. These are below SMAQMD's PM_{10} and $PM_{2.5}$ thresholds of 80 and 82 lb per day, assuming BACT is applied. However, these estimates are also conservative as they represent the maximum emissions operation scenario of a Jenbacher JMS engine 620 operating at full capacity throughout the year. This engine has the highest fuel capacity of all the engines considered for the project.

The *Guidance to Address the Friant Ranch Ruling for CEQA Projects in the Sac Metro Air District, Sacramento, California* (SMAQMD 2020b) notes that, by default, the Minor Project Health Effects Tool model generates conservatively high health effects. As explained in the guidance, the outputs are based on simulation of a full year of exposure at the maximum daily average of increases in air pollutant concentrations. In the Minor Project Tool, emissions are assumed to be at 82 pounds per day of NO_X, ROG, or $PM_{2.5}$ and show the incidences of respiratory, cardiovascular, and mortality effects. As described above, the project emissions would be less than SMAQMD's recommended mass thresholds for criteria air pollutants. At the project location, the model calculates additional mortality of 2.1 persons per year due to ozone and $PM_{2.5}$ exposure. However, this result unequivocally overstates the potential cardiovascular and respiratory health impacts of the project, and it is possible there would be no cardiovascular and respiratory health impacts (i.e., zero cases of additional mortality) attributable to mass emissions of the project (SMAQMD 2020b:A-15). The SMAQMD guidance also notes that the model output includes only health effects with sufficient research to provide quantification. Other health effects are linked to emissions of $PM_{2.5}$ and ozone that are not quantified in the Minor Project Health Effects Tool (SMAQMD 2020c). Other health effects of criteria air pollutants and ozone are discussed in Section 3.1.2," Environmental Setting," above. The linkage between mass emissions and other health effects are not quantifiable, and the project would not result in sizeable quantifiable health effects if it resulted in health effects at all. Therefore, it is presumed that these other health effects would not occur.

Summary

The project would not result in a SMAQMD threshold of significance exceedance or substantially contribute to a nonattainment status of the SVAB. Furthermore, based on health effect modeling, the project would not result in adverse health impacts. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.1-4: Expose Sensitive Receptors to Substantial Pollutant Concentrations

Both construction related and operational emissions of TACs associated with proposed project would occur more than 4,000 feet from the nearest sensitive receptor. In addition, the project would be a new permitted emission unit and would be required to meet SMAQMD's permitting requirements, including the application of T-BACT (i.e., equipment installed or employed that result in the lowest achievable TAC emission rate) to reduce criteria pollutant and TAC emissions. The requirements for T-BACT are identical to SMAQMD's thresholds of significance for TACs (i.e., 10 chances in a million for cancer risk and a hazard index greater than 1 at any off-site receptor). Thus, the project would not result in exposure of existing receptors to substantial TAC concentrations from construction or operational emissions. This impact would be **less than significant**.

TACs would be emitted during both project construction and operations. TACs are a defined set of airborne pollutants that may pose a present or potential hazard to human health. TACs may cause or contribute to an increase in mortality or in serious illness. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

The health effects associated with TACs are quite diverse and generally are assessed locally, rather than regionally. TACs can cause long-term health effects such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage; or short-term acute affects such as eye watering, respiratory irritation (a cough), runny nose, throat pain, and headaches.

For evaluation purposes, TACs are separated into carcinogens and non-carcinogens based on the nature of the health effects associated with exposure to the pollutant. Carcinogenic TACs are assumed to have no threshold below which health impacts would not occur. This contrasts with criteria air pollutants for which acceptable levels of exposure can be determined and for which the NAAQS and CAAQS have been established. Cancer risk from TACs is expressed as excess cancer cases per 1 million exposed individuals, typically over a lifetime of exposure. Noncancer health effects are expressed via a relative exposure level applicable to chronic and acute effects, separately.

The levels of TACs emitted during project construction and project operations are discussed separately below.

Construction

Project construction would result in new emissions of criteria air pollutants and precursors, as described above, as well as TACs. Particulate matter emitted from diesel construction equipment (diesel PM) would be the primary TAC of concern associated with the project. As shown above in Table 3.1-4, construction-related activities would emit up to 1.6 lb/day of diesel PM. The dose to which receptors are exposed is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the maximally exposed individual. Thus, the risks estimated for a maximally exposed individual are higher if a fixed exposure occurs over a longer period. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 30- or 70-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the project (OEHHA 2015). Additionally, construction would occur intermittently over a limited period of 18–24 months, a duration substantially shorter than the exposure period used for typical health risk calculations (i.e., 30 or 70 years), and not all phases of construction would involve heavy use of diesel PM-emitting equipment.

In addition, studies show that diesel PM is highly dispersive and that concentrations of diesel PM decline with distance from the source (e.g., 500 feet from a freeway, the concentration of diesel PM decreases by 70 percent) (Roorda-Knape et al. 1999; Zhu et al. 2002, as cited in CARB 2005:9). The nearest off-site sensitive receptors are the residences east of Franklin Boulevard, which is approximately 4,740 feet away.

Due to the low level of modeled diesel PM emissions from construction activities and because sensitive receptors are located nearly 1 mile away from the closest construction activity and because diesel PM disperses rapidly, the project's construction would not result in adverse health effects from TACs.

Operations

As explained in Chapter 2, "Project Description," the proposed project would be required to have an Authority to Construct permit prior to the construction and operation of the project. Additionally, as a stationary source of TAC emissions, the project would be subject to a detailed permitting process under SMAQMD Regulation 2, Permits (SMAQMD 2020a:5-6). During the permitting process, which SMAQMD would not commence formally until after the project has undergone CEQA review, SMAQMD would assess the impact from the project's operational emissions of TACs based on its guidance, as well as any applicable guidance from the OEHHA and CARB. SMAQMD requires T-BACT for certain stationary sources of TACs. Applicable T-BACTs include an add-on catalytic oxidizer that reduces ROG emissions, and therefore, most TAC species. In addition to T-BACT requirements, permits for equipment that may emit TACs may also contain conditions required by the National Emission Standards for Hazardous Air Pollutants and Air Toxic Control Measures promulgated by the EPA and CARB, respectively. The application of T-BACT would be

required as part of the permitting process, and the specific T-BACT (i.e., add-on catalytic oxidizer) to be applied to the equipment will be determined by the SMAQMD during the permitting process. In short, SMAQMD's permitting process would ensure that the new stationary sources of TACs that would be part of the project, most notably the new biogeneration facility, would not receive the authority to construct or permit to operate if they would result in:

- A cancer risk greater than 10.0 in 1 million at any off-site receptor; and/or
- An off-site ground-level concentration of non-carcinogenic TACs generated from the project that would result in a Hazard Index greater than 1.0.

These permitting criteria are identical to the SMAQMD's thresholds of significance for TACs (SMAQMD 2020a).

Summary

Because of the relatively short duration of TAC-generating construction activity and the distance to offsite sensitive receptors, the cancer risk associated with diesel PM generated by construction-related activities would not adversely affect any nearby sensitive receptors. In addition, SMAQMD's permitting process would ensure that the operation of new stationary sources of TACs as part of the project, would not receive the authority to construct or permit to operate if they would result in exceedance of these same criteria. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.1-5: Create Objectionable Odors Affecting a Substantial Number of People

The project would result in minimal construction-related odors and would not introduce new odor sources during operations and, therefore, would not result in an odor impact. As a result, potential exposure of sensitive receptors to objectionable odors would be **less than significant**.

Minor odors from the use of heavy equipment during construction would be temporary and intermittent and would dissipate rapidly from the source with increases in distance. It is not anticipated that these odors would be noticeable at the nearest residential receptors, which are located approximately 4,740 feet from the project area. Operation of the project would not result in the generation of more digester gas or the generation of any new odors. The project would also not affect the wastewater treatment capacity at the facility or the amount of effluent that would be released which could result in an increase in odor-generating sources. Therefore, project construction or operation would not result in exposure of a substantial number of people to objectionable odors, and this impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

3.2 BIOLOGICAL RESOURCES

This section addresses biological resources known or with potential to occur in or near the project area, which includes the proposed biogeneration facility site and staging area and describes potential effects of implementation of the Regional San BioGeneration Facility Project on those resources. The utility demolition area includes underground utilities that would be abandoned in place and a concrete vault at either end of the utility lines (Figure 2-3 in Chapter 2, "Project Description"). Because no ground disturbance would be required for utility demolition and no biological resources are present within the concrete vaults, this analysis focuses on the portion of the project area that is the area of disturbance. Data reviewed in preparation of this analysis include:

- Results of California Natural Diversity Database (CNDDB) record search of the Bruceville, Carmichael, Courtland, Clarksburg, Elk Grove, Florin, Galt, Sacramento East, and Sacramento West U.S. Geological Survey (USGS) 7.5-minute quadrangles (CNDDB 2021);
- Results of California Native Plant Society, Inventory of Rare Plants search of the Bruceville, Carmichael, Courtland, Clarksburg, Elk Grove, Florin, Galt, Sacramento East, and Sacramento West USGS 7.5-minue quadrangles (CNPS 2021);
- A list of federally proposed, candidate, threatened, and endangered species that could be affected by projects in the region obtained from the U.S. Fish and Wildlife Service (USFWS) Information, Planning, and Consultation System (USFWS 2021);
- California Wildlife Habitat Relationships (CDFW 2021);
- Reconnaissance-level survey of the project area by an Ascent Environmental wildlife biologist on September 23, 2020; and
- Aerial photographs of the project area and region.

3.2.1 Regulatory Setting

FEDERAL

Federal Endangered Species Act

Pursuant to the federal Endangered Species Act (ESA) (16 U.S.C. Section 1531 et seq.), USFWS regulates the taking of species listed in the ESA as threatened or endangered. In general, persons subject to ESA (including private parties) are prohibited from "taking" endangered or threatened fish and wildlife species, and from "taking" endangered or threatened plants in areas under federal jurisdiction or in violation of state law. Under Section 9 of the ESA, the definition of "take" is to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." USFWS has also interpreted the definition of "harm" to include significant habitat modification that could result in take.

Section 10 of the ESA applies if a non-federal agency is the lead agency for an action that results in take and no other federal agencies are involved in permitting the action. Section 7 of the ESA applies if a federal discretionary action is required (e.g., a federal agency must issue a permit), in which case the involved federal agency consults with USFWS.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA), first enacted in 1918, provides for protection of international migratory birds and authorizes the Secretary of the Interior to regulate the taking of migratory birds. The MBTA provides that it will be unlawful, except as permitted by regulations, to pursue, take, or kill any migratory bird, or any part, nest, or egg of any such bird. Under the MBTA, "take" is defined as "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or any attempt to carry out these activities." A take does not include habitat destruction or alteration, as long as there is not a direct taking of birds, nests, eggs, or parts thereof. The current list of species protected by the MBTA can be

found in Title 50 of the Code of Federal Regulations (CFR), Section 10.13 (50 CFR 10.13). The list includes nearly all birds native to the United States.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act declares it is illegal to take bald eagles, including their parts, nests, or eggs unless authorized. "Take" is defined as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb." Disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause injury to an eagle, or a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or nest abandonment. In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death, or nest abandonment.

Section 404 of the Clean Water Act

Section 404 of the federal Clean Water Act (CWA) requires a project applicant to obtain a permit before engaging in any activity that involves any discharge of dredged or fill material into waters of the United States, including wetlands. Fill material is material placed in waters of the United States where the material has the effect of replacing any portion of a water of the United States with dry land or changing the bottom elevation of any portion of a water of the United States. Waters of the United States include navigable waters of the United States; interstate waters; all other waters where the use, degradation, or destruction of the waters could affect interstate or foreign commerce; relatively permanent tributaries to any of these waters, and wetlands adjacent to these waters. Wetlands are defined as those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Potentially jurisdictional wetlands must meet three wetland delineation criteria: hydrophytic vegetation, hydric soil types, and wetland hydrology. Wetlands that meet the delineation criteria may be jurisdictional under Section 404 of CWA pending U.S. Army Corps of Engineers verification.

Section 401 Water Quality Certification

Under Section 401 of the CWA, an applicant for a Section 404 permit must obtain a certificate from the appropriate state agency stating that the intended dredging or filling activity is consistent with the state's water quality standards and criteria. In California, the authority to grant water quality certification is delegated by the State Water Resources Control Board to the regional water quality control boards (RWQCBs).

STATE

California Endangered Species Act

Pursuant to the California Endangered Species Act (CESA), a permit from CDFW is required for projects that could result in the "take" of a plant or animal species that is listed by the state as threatened or endangered. Under CESA, "take" is defined as an activity that would directly or indirectly kill an individual of a species but does not include "harm" or "harass," as does the federal definition. As a result, the threshold for take is higher under CESA than under the federal ESA. Authorization for take of state-listed species can be obtained through a California Fish and Game Code Section 2081 incidental take permit.

California Fish and Game Code Sections 3503 and 3503.5—Protection of Bird Nests and Raptors

Section 3503 of the Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 of the California Fish and Game Code states that it is unlawful to take, possess, or destroy any raptors (i.e., species in the orders *Falconiformes* and *Strigiformes*), including their nests or eggs. Typical violations include destruction of active nests as a result of tree removal or disturbance caused by project construction or other activities that cause the adults to abandon the nest, resulting in loss of eggs and/or young.

Fully Protected Species under the California Fish and Game Code

Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code prohibit take of fully protected birds, mammals, reptiles, amphibians, and fish. Species listed under these statutes may not be taken or possessed at any time and no incidental take permits can be issued for these species except for scientific research purposes, for relocation to protect livestock, or as part of a Natural Community Conservation Plan (NCCP).

California Native Plant Protection Act

The Native Plant Protection Act (NPPA; California Fish and Game Code Section 1900 et seq.) allows the California Fish and Game Commission to designate plants as rare or endangered. Sixty-four species, subspecies, and varieties of plants are protected as rare under the NPPA. The act prohibits take of endangered or rare native plants but includes exceptions for agricultural and nursery operations; for emergencies; and, after proper notification of CDFW, for vegetation removal from canals, roads, and other building sites, changes in land use, and other situations.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act requires that each of the nine RWQCBs prepare and periodically update basin plans for water quality control. Each basin plan sets forth water quality standards for surface water and groundwater, and actions to control nonpoint and point sources of pollution to achieve and maintain these standards. Basin plans offer an opportunity to protect wetlands through the establishment of water quality objectives. The RWQCB's jurisdiction includes waters of the United States, as well as areas that meet the definition of "waters of the state." Waters of the state is defined as any surface water or groundwater, including saline waters, within the boundaries of the state. The RWQCB has the discretion to take jurisdiction over areas not federally protected under Section 404 of the CWA provided they meet the definition of waters of the state. Mitigation requiring no net loss of wetlands functions and values of waters of the state is typically required by the RWQCB.

LOCAL

Sacramento County General Plan

The following goals and policies of the Conservation Element of the *Sacramento County 2030 General Plan* (Sacramento County 2011) are applicable to the terrestrial biological resources that may be affected by the project:

- **Policy CO-58:** Ensure no net loss of wetlands, riparian woodlands, and oak woodlands.
- **Policy CO-59:** Ensure mitigation occurs for any loss of or modification to the following types of acreage and habitat function:
  - vernal pools,
  - wetlands,
  - riparian,
  - native vegetative habitat, and
  - special-status species habitat.
- **Policy CO-60:** Mitigation should be directed to lands identified on the Open Space Vision Diagram and associated component maps (please refer to the Open Space Element of the 2030 General Plan).
- **Policy CO-62:** Permanently protect land required as mitigation.
- **Policy CO-66:** Mitigation sites shall have a monitoring and management program, including an adaptive management component, and an established funding mechanism. The programs shall be consistent with Habitat Conservation Plans that have been adopted or are in draft format.

- **Policy CO-138:** Protect and preserve non-oak native trees along riparian areas if used by Swainson's hawk, as well as landmark and native oak trees measuring a minimum of 6 inches in diameter or 10 inches aggregate for multi-trunk trees at 4.5 feet above ground.
- **Policy CO-139:** Native trees other than oaks, which cannot be protected through development, shall be replaced with in-kind species in accordance with established tree planting specifications, the combined diameter of which shall equal the combined diameter of the trees removed.
- **Policy CO-140:** For projects involving native oak woodlands, oak savannah or mixed riparian areas, ensure mitigation through either of the following methods:
  - An adopted habitat conservation plan.
  - Ensure no net loss of canopy area through a combination of the following: (1) preserving the main, central portions of consolidated and isolated groves constituting the existing canopy and (2) provide an area onsite to mitigate any canopy lost. Native oak mitigation area must be a contiguous area onsite which is equal to the size of canopy area lost and shall be adjacent to existing oak canopy to ensure opportunities for regeneration.
  - Removal of native oaks shall be compensated with native oak species with a minimum of a one to one diameter at breast height (DBH) replacement.
  - A provision for a comparable onsite area for the propagation of oak trees may substitute for replacement tree planting requirements at the discretion of the County Tree Coordinator when removal of a mature oak tree is necessary.
- **Policy CO-145:** Removal of non-native tree canopy for development shall be mitigated by creation of new tree canopy equivalent to the acreage of non-native tree canopy removed. New tree canopy acreage shall be calculated using the 15-year shade cover values for tree species.

Sacramento County Swainson's Hawk Ordinance

Chapter 16.130 of Title 16 of the Sacramento County Code addresses the reduction in Swainson's hawk foraging habitat within unincorporated Sacramento County (Swainson's Hawk Technical Advisory Committee 2000). Participating in the County's Swainson's Hawk Mitigation Program, which is voluntary, is one option for mitigating the loss of foraging habitat within unincorporated areas of the county. Under this program, mitigation for impacts less than 40 acres can be achieved by paying a mitigation fee or providing replacement habitat (title or easement to suitable Swainson's hawk mitigation lands on a per-acre basis); mitigation for impacts of 40 acres or greater can be achieved only by providing replacement habitat under this program. Other mitigation options usually involve working on an individual basis with CDFW. For example, participation in a CDFW-approved conservation bank with available credits for Swainson's hawk foraging habitat could meet mitigation requirements.

Sacramento County Tree Preservation Ordinance

The Sacramento County Tree Preservation Ordinance (Chapter 19.12 of the County Code) provides protections for native oak trees. Chapter 19.12 of the County Code states that "it shall be the policy of the County to preserve all trees possible through its development review process." It should be noted that to be considered a tree, as opposed to a seedling or sapling, the tree must have a diameter at breast height (dbh) of at least 6 inches or, if it has multiple trunks of less than 6 inches each, a combined dbh of 10 inches. Trees meeting this definition are protected under the County's Tree Ordinance, and no trenching, grading, or filling within the dripline, or destroying, killing, or removing any such tree is allowed without a tree permit from the Director of Public Works.

South Sacramento Habitat Conservation Plan

Pursuant to Section 10(a)(1)(B) of the ESA, the South Sacramento Habitat Conservation Plan (SSHCP) presents a regional approach to preserve Federal and state endangered and threatened species and to streamline the existing development-permitting process in areas under development. The SSHCP, which was approved by Sacramento County in 2018, is a large-scale consolidated effort to protect and enhance wetlands (primarily vernal pools), aquatic, and upland habitats to

provide ecologically viable conservation areas (Sacramento County 2018). Permits for the SSHCP were issued in 2019. The SSHCP covers 372,000-acres of south Sacramento County and Rancho Cordova, California. It will preserve natural lands in Sacramento County and protect habitat for 28 special-status plant and animal species, including 10 state and federally listed species, which are included in Tables 3.2-2 and 3.2-3 below. The boundary of the SSHCP was defined using political and ecological factors. The geographical boundaries are U.S. Highway 50 to the north, the Sacramento River levee and County Road J11 to the west, the Sacramento County line with El Dorado and Amador counties to the east, and the San Joaquin County line to the south. The SSHCP will allow the County of Sacramento, and cities of Rancho Cordova, and Galt to extend incidental take coverage to third parties. Regional San is a participating agency in the SSHCP.

3.2.2 Environmental Setting

SURROUNDING AREA

The project area is located within the existing Sacramento Regional Wastewater Treatment Plant (SRWTP) site. The SRWTP site is 1,049 acres and consists primarily of development and facilities associated with the wastewater treatment plant and associated offices, and the Carson Cogen Plant.

The SRWTP is surrounded by the 2,144-acre Bufferlands. The Bufferlands provide a mix of high-quality upland and wetland habitats, that serves as an important wildlife area. The Bufferlands supports more than 230 species of birds, 25 species of native mammals, and several native fish, amphibians, and reptiles. The Bufferlands is also home to more than 20 species of rare plants and animals, including several threatened and endangered species such as Swainson's hawk (*Buteo swainsoni*), vernal pool fairy shrimp (*Branchinecta lynchi*), and giant garter snake (*Thamnophis gigas*).

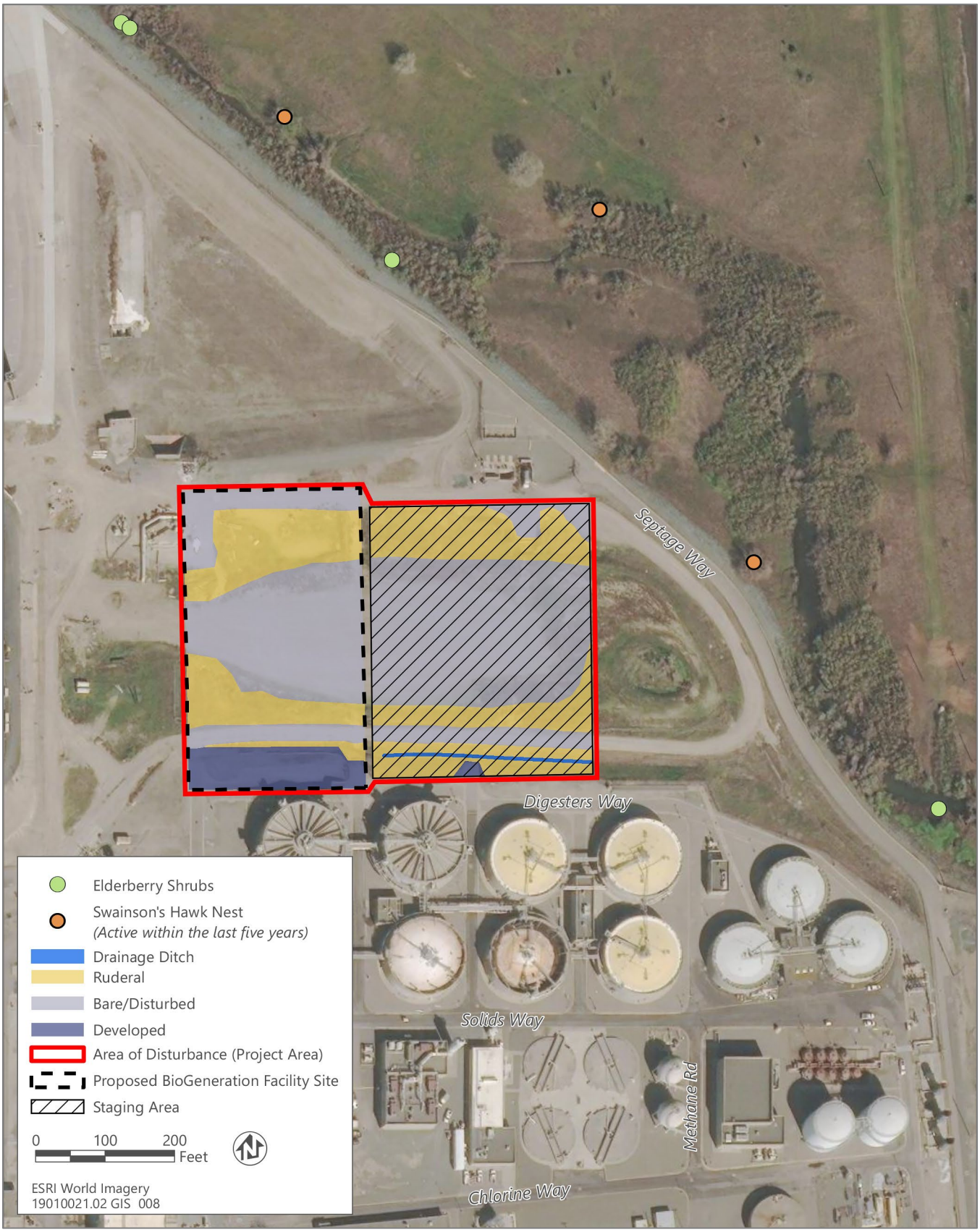
PROJECT AREA

The project area consists of disturbed, vacant land located within the SRWTP core area. The project area has been partially graded and is currently used for staging and material storage for ongoing projects within the SRWTP site. Historically, the SRWTP was raised several feet by importing fill to the site. The topography within the project area and surrounding Bufferlands is generally flat with the only topographic variation created by levees, dirt mounds in spoils areas, and low spots not previously filled (see Figures 2.1-1 and 2.1-2 in Section 2.1, "Aesthetics," in Appendix A). The project area is within the boundary of the SSHCP and is classified as a low-density development area that is within the urban development area (Sacramento County 2018).

Land Cover

The land cover types were identified through review of Google Earth aerial imagery and verified during a reconnaissance survey conducted on September 23, 2020. The approximately 5.6-acre area encompassing the proposed biogeneration facility site and staging area consists of mostly bare/disturbed and ruderal land cover types, but also has developed and drainage ditch land cover on the southern edge (Table 3.2-1, Figure 3.2-1). The proposed biogeneration facility site is approximately 3.4 acres, and the staging area is approximately 2.2 acres.

Five Fremont cottonwood (*Populus fremontii*) trees are located east of the staging area (Figure 3.2-1). The cottonwood trees are at the original ground level prior to filling of the area, which is 12 feet below the surrounding ground level. The trees crowns are approximately 7 to 10 feet above surrounding ground level. Elderberry shrubs are present within the Bufferlands north and east of the project area; however, no elderberry shrubs are located within the project area (Figure 3.2-1). The northeast corner of the project area is zoned as AG-80; however, there is no active agricultural land within the project area or anywhere on the SRWTP site. The nearest active agriculture area is approximately 700 feet east of the project area.



Source: adapted by Ascent Environmental in 2022

Figure 3.2-1 Vegetation Land Cover

Drainage Ditch

There is approximately 0.03-acre of drainage ditch located in the staging area that collects seasonal rain runoff water from the area around the digesters and from the project area. This drainage ditch drains to the east into a drainage inlet that directs the runoff to the headwaters of the treatment plant for treatment. There is no direct connection surface waters or aquatic habitat. Vegetation within the drainage ditch consists of wild oats (*Avena fatua*), Italian thistle (*Carduus pycnocephalus*), yellow star thistle (*Centaurea solstitialis*), stinkwort (*Dittrichia graveolens*), rabbit's foot grass (*Polypogon monspeliensis*), and common sunflower (*Helianthus annuus*).

Ruderal

The ruderal land cover type occurs in the northern and southern portions of the project area and is approximately 1.9-acres. Plants present include Italian thistle, yellow star thistle, stinkwort, rabbit's foot grass, wild oats, common sunflower, ripgut brome (*Bromus diandrus*), brome (*Bromus* sp.), narrow-leaved plantain (*Plantago lanceolota*), sweetclover (*Melilotus* sp.), curly dock (*Rumex crispus*), sweet fennel (*Foeniculum vulgare*), fireweed (*Epilobium brachycarpum*), wild radish (*Raphanus raphanistrum*), and blessed milk thistle (*Silybum marianum*).

Bare/Disturbed

The disturbed land cover type is approximately 3.1 acres and includes roads and graded portions of the project area. Plant species present within this cover type are consistent with the plants found in the ruderal land cover type, discussed above.

Developed

There is approximately 0.4-acre of developed land cover type which includes land with impervious surfaces and is located at the southern portion of the project area, predominantly in the proposed biogeneration facility site.

Table 3.2-1 Land Cover Types on the Project Area

Land Cover/Habitat Type	Acreage
Drainage Ditch	0.03
Ruderal	1.9
Bare/Disturbed	3.1
Developed	0.4

Common Wildlife Species

There are many common wildlife species that use disturbed areas, such as the project area, for foraging, roosting, and/or nesting. These species include native animals that have adapted well to living close to humans, such as red-tailed hawk (*Buteo jamaicensis*), coyote (*Canis latrans*), Virginia opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), western fence lizard (Sceleroporus occidentalis), and tree swallow (*Hirundo rustica*), as well as nonnative species, such as bullfrog (*Rana catesbiana*), house sparrow (*Passer domesticus*), and European starling (*Sturnus vulgaris*). Common native and nonnative wildlife species could use the project area for breeding and are likely to move through the area on a regular basis while foraging.

Sensitive Biological Resources

Special-Status Species

Special-status species are defined as species that are legally protected or that are otherwise considered sensitive by federal, state, or local resource agencies. Special-status species are species, subspecies, or varieties that fall into one or more of the following categories, regardless of their legal or protection status:

- officially listed by California or the federal government as endangered, threatened, or rare;
- a candidate for state or federal listing as endangered, threatened, or rare;
- taxa (i.e., taxonomic category or group) that meet the criteria for listing, even if not currently included on any list, as described in California Code of Regulations (CCR) Section 15380 of the State CEQA Guidelines;

- species identified by CDFW as Species of Special Concern;
- species listed as Fully Protected under the California Fish and Game Code;
- species afforded protection under local planning documents; and
- taxa considered by the CDFW to be "rare, threatened, or endangered in California" and assigned a California Rare Plant Rank (CRPR). The CDFW system includes five rarity and endangerment ranks for categorizing plant species of concern, summarized as follows:
  - CRPR 1A - Plants presumed to be extinct in California;
  - CRPR 1B - Plants that are rare, threatened, or endangered in California and elsewhere;
  - CRPR 2 - Plants that are rare, threatened, or endangered in California but more common elsewhere;
  - CRPR 3 - Plants about which more information is needed (a review list); and
  - CRPR 4 - Plants of limited distribution (a watch list).

The term "California species of special concern" is applied by CDFW to animals not listed under ESA or CESA, but that are considered to be declining at a rate that could result in listing, or that historically occurred in low numbers and known threats to their persistence currently exist. CDFW's fully protected status was California's first attempt to identify and protect animals that were rare or facing extinction. Most species listed as fully protected were eventually listed as threatened or endangered under CESA; however, some species remain listed as fully protected but do not have simultaneous listing under CESA. Fully protected species may not be taken or possessed at any time and no take permits can be issued for these species except for scientific research purposes, for relocation to protect livestock, or as part of a Natural Community Conservation Plan.

Of the 24 special-status plant species that are known to occur within the nine U.S. Geological Survey (USGS) 7.5-minute quadrangles including and surrounding the project vicinity, none have potential to occur in the project area based on the absence of habitat suitable for the species (Appendix C) (CNDDB 2021, CNPS 2021). Of the 36 special-status wildlife species that could occur within the nine USGS quadrangles, six species were determined to have potential to occur in the project area based on the presence of habitat suitable for the species (CNDDB 2021, Table 3.2-2). All six wildlife species that may occur in the project area are covered under the SSHCP (Sacramento County 2018). No occurrences of these plant or animal species have been recorded within the project area (CNDDB 2021, CNPS 2021). The table below describe the species' regulatory status, habitat, and potential for occurrence in the project area for species that have the potential to occur within the project vicinity. A complete list of species known to occur within the USGS 7.5-minute quadrangles surrounding the project vicinity are shown in Appendix C.

Table 3.2-2 Special-Status Wildlife Species Known to Occur in the Vicinity of the Project Area and Potential for Occurrence on the Project Area

Species	Listing Status[1] Federal	Listing Status[1] State	SSHCP	Habitat	Potential for Occurrence
Birds					
Burrowing owl *Athene cunicularia*	—	SSC	Covered	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	***May occur.*** Species known to nest in the Bufferlands. Vegetation height in the project area may discourage use by owls. Limited California ground squirrel burrows as site has been graded historically for staging and construction storage.

Species	Listing Status[1] Federal	Listing Status[1] State	SSHCP	Habitat	Potential for Occurrence
Cooper's hawk *Accipiter cooperi*	—	—	Covered	Woodland, primarily of open, interrupted, or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river floodplains; also, live oaks.	***May occur.*** Not expected to occur in the project area but could occur in adjacent Bufferlands. Not likely to nest in the project area but could nest in adjacent riparian habitat along Laguna Creek north of the project area.
Loggerhead shrike *Lanius ludovicianus*	—	SSC	Covered	A common resident and winter visitor in lowlands and foothills throughout California. Prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. Occurs only rarely in heavily urbanized areas, but often found in open cropland. Sometimes uses edges of denser habitats. Nests in riparian, shrubland, and open woodlands.	***May occur.*** May forage within the ruderal habitat for insects and small mice. The project area lacks suitable nesting habitat but riparian area north and east of project area provides suitable nesting and foraging habitat.
Swainson's hawk *Buteo swainsoni*	—	ST	Covered	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	***May occur.*** Mature trees and annual grassland in the Bufferlands provide suitable nesting and foraging habitat. Nearest known nest location is 100 feet east of project area within the Bufferlands. The height of the trees immediately east of the staging area in relation to existing ground level likely preclude raptors from nesting in the trees.
Tricolored blackbird *Agelaius tricolor*	—	ST, SSC	Covered	Freshwater marsh, marsh and swamp, swamp, wetland. Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony.	***May occur.*** No suitable habitat for this species is present within the project area; however, the species is known to frequent the Bufferlands. Riparian habitat along Laguna Creek north of the project area may provide suitable nesting habitat.
White-tailed kite *Elanus leucurus*	—	FP	Covered	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	***May occur.*** Mature trees and annual grassland in the surrounding area provide suitable nesting and foraging habitat, though the project area does not contain suitable habitat for this species.

Notes:

[1] Status definitions:

Federal:

FT Threatened (legally protected under ESA)

FE Endangered (legally protected under ESA)

FC Candidate for listing under ESA (legally protected)

State:

SE Endangered (legally protected under CESA)

ST Threatened (legally protected under CESA)

SC Candidate for listing under CESA (legally protected)

FP Fully Protected (legally protected under California Fish and Game Code)

SSC Species of Special Concern (protected under CEQA, but not legally protected under CESA)

Not Expected to Occur – For wildlife species, suitable habitat is not in project area or else surrounding urban development makes occurrence unlikely. For plant species, suitable habitat is lacking, or presence is unlikely due to rarity of species and/or the nearest known occurrence is greater than 5 miles.
May Occur – Suitable habitat is present in the project area and the nearest known occurrence is within 5 miles.

Raptors

The project area provides low quality foraging habitat for raptors, particularly Swainson's hawk, and wintering white-tailed kite, due to limited prey availability and ongoing disturbance, such as staging for ongoing projects, driving of commercial septic pump trucks, and disking for fire control. There are five cottonwood trees immediately east of the proposed staging area, but no nest structures attributable to raptors were observed within the trees. The height of the trees, in relation to existing ground level, likely preclude raptors from nesting in the trees.

Sensitive Natural Communities

Sensitive natural communities are those native plant communities defined by CDFW as having limited distribution statewide or within a county or region and that are often vulnerable to environmental effects of projects (CDFW 2018). These communities may or may not contain special-status plants or their habitat (CDFW 2018). CDFW designates sensitive natural communities based on their state rarity and threat ranking using NatureServe's Heritage Methodology. Natural communities with rarity ranks of S1 to S3, where S1 is critically imperiled, S2 is imperiled, and S3 is vulnerable, are considered sensitive natural communities to be addressed in the environmental review processes of CEQA and its equivalents (CDFW 2018).

Sensitive natural communities are generally identified at the alliance level of vegetation classification hierarchy using the Manual of California Vegetation (Sawyer et al. 2009). Known occurrences of sensitive natural communities are included in the CNDDB; however, no new occurrences have been added to the CNDDB since the mid-1990s when funding was eliminated for this portion of the CNDDB program. Seven sensitive natural communities were identified within the nine USGS quadrangles including and surrounding the project area through a query of the CNDDB: northern hardpan vernal pool, coastal and valley freshwater marsh, great valley cottonwood riparian forest, great valley mixed riparian forest, great valley oak riparian forest, elderberry savanna, and valley oak woodland (CNDDB 2021). None of these sensitive natural communities are present in the project area.

Given the incomplete nature of this information in the CNDDB, it is assumed that other sensitive natural communities may occur that were not identified in the CNDDB query. However, the project would not require any tree removal or affect riparian habitat or sensitive natural communities in the adjacent Bufferlands.

Aquatic Resources

The drainage ditch present at the south end of the staging area is part of the SRWTP operations. This drainage ditch collects runoff from the digesters area and staging area and conveys it to the headworks of the SRWTP. Vegetation within the drainage ditch consists of wild oats (*Avena fatua*), Italian thistle (*Carduus pycnocephalus*), yellow star thistle (*Centaurea solstitialis*), stinkwort (*Dittrichia graveolens*), rabbit's foot grass (*Polypogon monspeliensis*), and common sunflower (*Helianthus annuus*). Features that are part of a treatment system are excluded from state and federal jurisdiction and, therefore, there are no state or federally protected wetlands or other waters within the project area.

3.2.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

This impact evaluation is based on data collected during a reconnaissance-level field survey conducted on September 23, 2020, review of aerial photographs, and review of existing databases that address biological resources in the project vicinity, as described above.

The SRWTP is within the urban development area boundary of the SSHCP and thus eligible for coverage, although coverage under the SSHCP is not being sought for this project. Project mitigation measures are consistent with the covered species take avoidance and minimization measures (AMMs) in the SSHCP. Regional San will implement these

measures to avoid, minimize, and fully mitigate impacts to covered species and by doing so, impacts to other special-status species not covered by the SSHCP will also be avoided, minimized, and fully mitigated.

THRESHOLDS OF SIGNIFICANCE

An impact on biological resources is considered significant if implementation of the project would do any of the following:

- have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by CDFW or USFWS;
- have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and/or
- conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

ISSUES NOT DISCUSSED FURTHER

Special-Status Plants

The project area does not contain habitat suitable for the special-status plant species identified within the nine USGS 7.5-minute quadrangles surrounding the project area or otherwise known to occur in the region. Project implementation would not result in any impacts to special-status plants. This issue is not discussed further.

Sensitive Natural Communities and Riparian Habitat

There are no sensitive natural communities and no riparian habitat in or immediately adjacent to the project area. Project implementation would not result in any impacts to these resources. This issue is not discussed further.

State-Protected or Federally Protected Wetlands

The project area does not contain any aquatic habitat (i.e., wetlands, streams, canals, irrigation ditches) that is subject to state and federal jurisdiction. The drainage ditch present at the south end of the staging area is part of the SRWTP operations. Features that are part of a treatment system are excluded from state and federal jurisdiction and, therefore, there are no state or federally protected wetlands or other waters within the project area. Project implementation would therefore not result in any impact on State-protected or federally protected wetlands. In addition, no special-status species or sensitive habitat are associated with the drainage ditch. The potential for the project to have a substantial adverse effect on state or federally protected wetlands is not discussed further.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.2-1: Result in Disturbance to or Loss of Special-Status Wildlife Species and Habitat

Project implementation could lead to potential loss of bird nests due to disturbance from construction activities. Loss of nests could include nest abandonment, failure, and/or mortality of chicks or eggs. Therefore, this impact is potentially significant.

As shown in Table 3.2-2, six special-status wildlife species may occur in the project area: burrowing owl, Cooper's hawk, loggerhead shrike, Swainson's hawk, tricolored blackbird, and white-tailed kite. Additionally, common native nesting birds protected under California Fish and Game Code and the federal MBTA may also be present in the project area and are discussed below.

Swainson's Hawk, White-Tailed Kite, Cooper's Hawk, Burrowing Owl, Loggerhead Shrike and Other Raptors

Most of the project area has been graded and is devoid of vegetation. Ruderal vegetation on the margins of the graded area is tall and thick, limiting the foraging potential for raptors. Due to ongoing disturbance, lack of prey availability, and habitat conditions, this site is considered low quality foraging habitat for Swainson's hawk and other raptors. In addition, loss of Swainson's hawk foraging habitat in the project area was part of the significant effect associated with the EchoWater Project in which 220 acres were affected, including the 5.6 in the project area. This impact was mitigated through compensatory mitigation for Swainson's hawk foraging habitat as part of the EchoWater Project (Regional San 2014). No new impacts would result. Therefore, the loss of up to 5.6 acres of barren and ruderal habitat would not have a substantial adverse effect on the foraging success of the local Swainson's hawk population or of other raptors. For this reason, potential impacts to Swainson's hawk foraging habitat would be less than significant. The project would not require any tree removal that could result in direct loss of nests. In addition, there is no suitable nesting habitat for raptors within the project area. Although there are five Freemont's cottonwoods east of the staging area, the base elevation of the trees is approximately 12 feet below current ground level due to historical fill of the SRWTP site, which reduces the suitability for nesting. No raptor nest structures were observed within these cottonwoods.

However, there are three known Swainson's hawk nests that have been active within the last 5 years in the project vicinity (Figure 3.2-1). The nearest nest, which was active in 2020, is in a willow tree 100 feet east of the project area. The nest is in a riparian area adjacent to Laguna Creek within the Bufferlands. The other two nests are located 430 feet and 560 feet, respectively, north and northeast of the project area. No nighttime work requiring lighting that could disturb active nests is anticipated during construction; however, other construction activities associated with the proposed project during the breeding season (defined as March 1 - September 15 for Swainson's hawk) near active nest trees could disturb Swainson's hawks or other raptors if they are nesting nearby. Construction disturbance including noise and dust could result in nest abandonment, failure, and/or mortality of chicks or eggs. Other Swainson's hawk and raptor nests located near the project area could also be disturbed or fail as a result of project construction during the breeding season.

Although Swainson's hawk is the only state-listed raptor species expected to occur in the project vicinity, white-tailed kite, a fully protected species under the California Fish and Game Code, could also nest in the project vicinity. Additionally, all raptor species and their nests are protected under California Fish and Game Code. Other raptors known to nest in the project vicinity include red-shouldered hawk, American kestrel, red-tailed hawk, great horned owl, barn owl, and western burrowing owl.

Western burrowing owl is designated by CDFW as a species of special concern. The nearest burrowing owl burrows are located in annual grassland approximately 700 feet southeast of the project area, on the east (opposite) side of Laguna Station Road and the UPRR berm. The burrowing owl population within the Bufferlands has been monitored for more than 20 years, and burrowing owls have not been documented or observed nesting within the project area; however, because they are in the project vicinity, there is the potential for them to directly or indirectly affected by project construction.

Loggerhead shrike, which is designated by CDFW as a species of special concern, is known to nest in the southern portion of the main SRWTP facilities area along Bufferlands Road and could nest in other locations in the surrounding area. Construction of the proposed project could disturb nesting loggerhead shrike if they were to nest within the riparian area adjacent to the project area. Although loggerhead shrike is not a raptor, the SSHCP includes them within their AMM for Covered Raptor Species. Swainson's hawk, white-tailed kite, northern harrier, burrowing owl, and loggerhead shrike are all covered species under the SSHCP. For consistency and to minimize repetition, they are evaluated together with raptors in this EIR. However, because the SSHCP AMMs for burrowing owl differ, a separate mitigation measure is included for burrowing owl.

The potential loss of raptor nests due to disturbance from construction activities would be **potentially significant**.

Mitigation Measures

Mitigation Measure 3.2-1a: Avoid Disturbance of Swainson's Hawk, Loggerhead Shrike, and Other Raptor Nests

Regional San will implement the following measures that are consistent with the AMMs in the SSHCP:

- For construction activities that would occur within 0.25 mile of a known or likely Swainson's hawk nest site (identified based on previous years' use by Swainson's hawk), Regional San will initiate construction activities before the nest initiation phase (i.e., before March 1), if possible. Depending on the timing, regularity, and intensity of construction activity, construction in the area prior to nest initiation may discourage a Swainson's hawk pair from using that site and eliminate the need to implement further nest-protection measures, such as buffers and limited construction operating periods around active nests. Other measures to deter establishment of nests (e.g., reflective striping or decoys) may be used prior to the breeding season in areas planned for active construction. However, if breeding raptors establish an active nest site, as evidenced by nest building, egg laying, incubation, or other nesting behavior, near the construction area, they will not be harassed or deterred from continuing with their normal breeding activities.
- For project activities, that begin between March 1 and September 15, preconstruction surveys for Swainson's hawk and other nesting raptors (including loggerhead shrike) will be conducted to identify active nests on and within 0.25 mile of the project area. Two surveys will be conducted before the beginning of any construction activities between March 1 and September 15. The first survey will be conducted within 30 days prior to ground disturbance activities, with a follow up surveys 3 days prior to the start of ground disturbance activities.
- If active Swainson's hawk, or other covered raptor species nest(s) are found within 0.25 mile of any project-related activity, Regional San will establish a 0.25-mile no-disturbance buffer around the active nest until the young have fledged.
- If active nests of other raptors (other than Swainson's hawk, or other covered raptor species) are found within 0.25 mile of any project-related activity, Regional San will establish a 0.25-mile no-disturbance buffer around the active nest until the young have fledged.
- If Swainson's hawks are nesting within 0.25 mile of any project-related activity, then a qualified biologist experienced with Swainson's hawk behavior will monitor the nest throughout the nesting season and to determine when the young have fledged. The qualified biologist can reduce the disturbance buffer as long as reducing the buffer would not likely result in nest abandonment. CDFW guidelines recommend implementation of 0.25-mile-wide buffer for Swainson's hawk and 0.25 mile for other raptors, but the size of the buffer may be adjusted if a qualified biologist and Regional San, in consultation with CDFW, determine that such an adjustment would not be likely to adversely affect the nest. The qualified biologist will be on site daily while construction-related activities are taking place within the buffer. If nesting Swainson's hawks begin to exhibit agitated behavior, such as defensive flights at intruders, getting up from a brooding position, or flying off the nest, the qualified biologist will have the authority to shut down construction activities. If agitated behavior is exhibited, the biologist, and Regional San will meet to determine the best course of action to avoid nest abandonment or take of individuals and will consult CDFW, if necessary, to identify appropriate avoidance measures. The qualified biologist will also train construction personnel on the required avoidance procedures, buffer zones, and protocols in the event that a Swainson's hawk flies into the active construction zone.
- Prior to construction activities, a qualified biologist will develop training materials for and conduct a mandatory Worker Environmental Awareness Program (WEAP) for all construction personnel who will have the potential to encounter any biological resources. The training materials will cover the following: 1) a review of the project boundaries; 2) all special-status species that may be present, their habitat, and identification; 3) the specific environmental commitments and mitigation measures that will be incorporated into the construction effort; 4) the general provisions and protections afforded by USFWS and CDFW; and 5) the proper procedures if a special-status species is encountered within the project area. An instructional pamphlet will be included with the WEAP. At the completion of the WEAP, the qualified biologist will identify a responsible party on-site (generally the project foreman) who will ensure that new construction members receive and review the pamphlet information. This responsible party will also be the primary point of contact if special-status species are found on site and the presence of the qualified biologist is required.

- Orange construction fencing will be installed to ensure that ground disturbance does not extend beyond the allowed construction footprint (i.e., the limit of project construction plus equipment staging areas and access roads). This fencing will remain in place until project completion.

Regional San or its contractor will water active construction areas regularly, including the staging area, if warranted, to avoid or minimize impacts from construction dust on adjacent vegetation and wildlife habitats. No surface water will be used from aquatic land covers; water will be obtained from a municipal source or existing groundwater well.

Mitigation Measure 3.2-1b: Avoid Disturbance of Burrowing Owl Nests

Regional San will implement the following measures that are consistent with AMMs included in the SSHCP. Surveys for burrowing owl will be required for both the breeding and non-breeding season.

A qualified biologist will survey available habitat within 250 feet of the project area prior to construction and map all burrows, noting any burrows that may be occupied. Occupied burrows are often (but not always) indicated by tracks, feathers, eggshell fragments, pellets, prey remains, and/or excrement. Surveying and mapping will be conducted by the qualified biologist while walking transects throughout the entire project area and all accessible areas within a 250-foot radius from the project area. The centerline of these transects will be no more than 50 feet apart and will vary in width to account for changes in terrain and vegetation that can preclude complete visual coverage of the area. For example, in hilly terrain with patches of tall grass, transects will be closer together, and in open areas with little vegetation, they can be 50 feet apart. If suitable habitat is identified during the initial survey, and if the project does not fully avoid the habitat, pre-construction surveys will be required. Suitable habitat is comprised of open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Burrows (artificial and natural) are also an essential component of suitable burrowing owl habitat. Burrowing owl habitat is fully avoided if project-related activities do not impinge on a 250-foot buffer established by the qualified biologist around suitable burrows.

Prior to any ground disturbance, a qualified biologist will conduct pre-construction surveys in all areas that were identified as suitable habitat if project activities are closer than the 250-foot buffer to suitable burrows. The purpose of the pre-construction surveys is to document the presence or absence of burrowing owls within the project area, particularly in areas within 250 feet of construction activities. To maximize the likelihood of detecting owls, the pre-construction survey will last a minimum of 3 hours. The survey will begin 1 hour before sunrise and continue until 2 hours after sunrise (3 hours total) or begin 2 hours before sunset and continue until 1 hour after sunset. A minimum of two pre-construction surveys will be conducted (if owls are detected on the first survey, a second survey is not needed). All owls observed will be counted and their location will be mapped. Surveys will conclude no more than 2 calendar days prior to construction.

If burrowing owl or evidence of burrowing owl is observed in the project area or within 250 feet of the project area during pre-construction surveys, then the following will occur:

- During Breeding Season: If the qualified biologist finds evidence of burrowing owl within the project area during the breeding season (February 1 through August 31), all project-related activities will avoid nest sites during the remainder of the breeding season or while the nest remains occupied by adults or young (nest occupation includes individuals or family groups foraging on or near the site following fledging). Avoidance is establishment of a minimum 250-foot buffer zone around nests. Construction and other project-related activities may occur outside of the 250-foot buffer zone. Construction and other project-related activities may be allowed inside of the 250-foot non-disturbance buffer during the breeding season if the nest is not disturbed, and Regional San develops an avoidance, minimization, and monitoring plan that is approved by CDFW prior to project construction based on the following criteria:
  - CDFW approves the avoidance and minimization plan provided by Regional San.
  - A qualified biologist monitors the owls for at least 3 days prior to construction to determine baseline nesting and foraging behavior (i.e., behavior without construction).
  - The same qualified biologist monitors the owls during construction and finds no change in owl nesting and foraging behavior in response to construction activities.
  - If there is any change in owl nesting and foraging behavior as a result of construction activities, the qualified biologist will have the authority to halt activities within the 250-foot buffer. Construction cannot resume

within the 250-foot buffer until any owls present are no longer affected by nearby construction activities, and with written concurrence from CDFW.

- If monitoring by the qualified biologist indicates that the nest is abandoned prior to the end of nesting season and the burrow is no longer in use, the non-disturbance buffer zone may be removed if approved by CDFW. The qualified biologist will excavate the burrow in accordance with the latest CDFW guidelines for burrowing owl to prevent reoccupation after receiving approval from CDFW.

- **During Non-Breeding Season:** During the non-breeding season (September 1 through January 31), the qualified biologist will establish a minimum 250-foot non-disturbance buffer around occupied burrows. Construction activities outside of this 250-foot buffer will be allowed. Construction activities within the non-disturbance buffer will be allowed if the following criteria are met to prevent owls from abandoning over-wintering sites:
  - A qualified biologist monitors the owls for at least 3 days prior to construction to determine baseline foraging behavior (i.e., behavior without construction).
  - The same qualified biologist monitors the owls during construction and finds no change in owl foraging behavior in response to construction activities.
  - If there is any change in owl foraging behavior as a result of construction activities, the qualified biologist will have authority to halt activities within the 250-foot buffer.
  - If the owls are gone for at least 1 week Regional San may request approval from CDFW that a qualified biologist excavate usable burrows and install one-way exclusionary devices to prevent owls from re-occupying the site. After all usable burrows are excavated, the buffer zone will be removed, and construction may continue.
  - Monitoring must continue as described above for the non-breeding season as long as the burrow remains active.
  - During construction of the proposed project, 250-foot construction buffer zones will be established and maintained around any occupied burrow. A qualified biologist will monitor the site to ensure that buffers are enforced, and owls are not disturbed. The qualified biologist will also train construction personnel on avoidance procedures, buffer zones, and protocols in the event that a burrowing owl flies into or is found in the active construction zone.
  - Passive relocation is not allowed without the written approval of CDFW. Passive owl relocation may be allowed on a case-by-case basis during the non-breeding season (September 1 through January 31) with the written approval of CDFW, if the other measures described in this mitigation measure preclude work from continuing. Passive relocation must be done in accordance with the latest CDFW guidelines for burrowing owl. Passive relocation will only be proposed if the burrow needing to be removed or with the potential to collapse from construction activities is the result of the proposed project. If passive relocation is approved by CDFW, a qualified biologist can passively exclude owls from their burrows during the non-breeding season by installing one-way doors in burrow entrances. These doors will be in place for 48 hours to ensure that owls have left the burrow, and then the biologist will excavate the burrow to prevent reoccupation. Burrows will be excavated using hand tools only. During excavation, an escape route will be maintained at all times. This may include inserting an artificial structure into the burrow to avoid having materials collapse into the burrow and trap owls inside.

Significance after Mitigation

Implementing Mitigation Measures 3.2-1a and 3.2-1b would reduce project-related impacts on Swainson's hawk, white-tailed kite, Cooper's hawk, loggerhead shrike, other raptors, and burrowing owl to a **less-than-significant** level because the measures would avoid the potential disturbance or loss of active nests and active burrows during project construction, and would require a CDFW approved avoidance, minimization, and monitoring plan for construction within the 250-foot no disturbance buffer during the nesting season as long as burrows are not disturbed.

Tricolored Blackbird and Common Native Birds

Tricolored blackbird is a CDFW species of special concern and is listed as a threatened species under the CESA. There are no records of nesting tricolored blackbird colonies in the project vicinity, but they are known to forage in the Bufferlands. Riparian habitat, which includes, Himalayan blackberry along Laguna Creek north of the project area may provide suitable nesting habitat for tricolored blackbird. Construction of the proposed project could disturb nesting tricolored blackbirds if they were to nest within the riparian area adjacent to the project area.

Common native nesting birds are protected by California Fish and Game Code and the federal MBTA. Nesting habitat potentially suitable for native bird species is present in the riparian zone north of the project area along Laguna Creek. While nest removal is unlikely because no trees would be removed for project implementation, project activities could still result in the disturbance of native nesting birds.

Grading and other construction activities for the proposed project, including dust and noise generated by construction, could result in the loss of nests or disruption to nesting attempts of tricolored blackbird, and non-special-status native birds protected by California Fish and Game Code and MBTA, if they are nesting within the riparian area adjacent to the project area.

The potential disturbance or loss of tricolored blackbird or common native bird nests or foraging habitat as a result of project construction would be **potentially significant**.

Mitigation Measure 3.2-1c: Avoid Disturbance of Tricolored Blackbird or Common Native Bird Nests or Foraging Habitat

Regional San will implement the following measures that are consistent with AMMs included in the SSHCP:

- A qualified biologist will conduct a field investigation to determine if existing or potential tricolored blackbird nesting or foraging sites are present in adjacent areas within 500 feet of the project area. Potential tricolored blackbird nest sites are often associated with freshwater marsh and seasonal wetlands, or in thickets of willow, blackberry, wild rose, thistle, and other thorny vegetation. Foraging habitat includes annual grasslands, wet and dry vernal pools and other seasonal wetlands, agricultural fields (such as large tracts of alfalfa and pastures with continuous haying schedules and recently tilled fields), cattle feedlots, and dairies. The qualified biologist will map all existing or potential nesting or foraging sites. Nesting sites will also be noted on construction maps.

Pre-construction surveys will be required to determine if active nests of tricolored blackbird are present within 500 feet of the project area, if potential nesting sites are found during field investigations and construction activities will occur during the breeding season (March 1 through September 15). A qualified biologist will conduct preconstruction surveys within 30 days and again within 3 days of ground-disturbing activities in areas of potential nesting habitat within 500 feet of the proposed project area to determine the presence of nesting tricolored blackbird. If a tricolored blackbird nest colony is present, then the following measures shall be implemented:

- If active nests are found within 500 feet of any project-related activity, Regional San will establish a temporary no-disturbance buffer, the size of which has been determined by a qualified biologist around the active nest site until the young have fledged.
- If nesting tricolored blackbirds are present within 500 feet of any project-related activity, then a qualified biologist will monitor the nest colony throughout the nesting season and to determine when the young have fledged. The qualified biologist will be on site daily while construction-related activities are taking place near the no-disturbance buffer. Work within the nest disturbance buffer will not be permitted. If the qualified biologist determines that tricolored blackbirds are exhibiting agitated behavior, construction will halt until the buffer size is increased to a distance necessary to prevent harm or harassment of nesting tricolored blackbirds. If the biologist determines that the colonies are at risk, a meeting with Regional San will be held to determine the best course of action to avoid nest abandonment or take of individuals. CDFW will be consulted, if necessary, to identify appropriate avoidance measures for the tricolored blackbird nesting colony. The qualified biologist will also train construction personnel on the required avoidance procedures, buffer zones, and protocols in the event that a tricolored blackbird flies into an active construction zone (i.e., outside the buffer zone).

A pre-construction survey will be required to determine if active nests of common native birds are present within 100 feet of the project area if construction activities will occur during the breeding season (March 1 through September

15). A qualified biologist will conduct pre-construction surveys within 14 days of ground-disturbing activities. If active nests of common native bird species are found, Regional San will establish a temporary no-disturbance buffer; the size of which will be determined by a qualified biologist. Factors to be considered for determining buffer size will include presence of natural buffers provided by vegetation or topography, nest height above ground, baseline levels of noise and human activity, species sensitivity, and proposed project construction activities. Generally, buffer size for common native bird species will be at least 20 feet. The size of the buffer may be adjusted if a qualified biologist, determines that such an adjustment would not be likely to adversely affect the nest.

Significance after Mitigation

Implementation Mitigation Measure 3.2-1c would reduce project-related impacts on tricolored blackbirds and common native birds to a **less-than-significant** level because it would avoid the potential disturbance or loss of active nests during project construction and requires 500-foot no disturbance buffer for tricolored blackbirds, and a temporary no-disturbance buffer (size to-be-determined) for common native nesting birds, during the nesting season as long as the nest/colony is occupied.

Impact 3.2-2: Interfere with Wildlife Movement Corridors or Impede the Use of Wildlife Nurseries

The project area is within the core facility area of the SRWTP, which is surrounded by the Bufferlands. The project area does not currently support native vegetation that would function as a wildlife nursery site. The project area is within a wildlife movement corridor, as it is located within the Pacific Flyway; however, it is also within the developed portion of the SRWTP. Though project construction activities could adversely affect common migratory birds through disturbance during the breeding season, these impacts would be addressed through implementation of Mitigation Measures 3.2-1a through 3.2-1c. Therefore, the impact to wildlife movement corridors or wildlife nurseries would be **less than significant**.

The project area is located within the Pacific Flyway, which is a major north-south route for migratory birds along western North America. Large numbers of waterfowl, shorebirds, and cranes may move through the area seasonally and may congregate in wetlands, grasslands, and agricultural fields for winter or use them as resting grounds during longer migrations from the Arctic to Central or South America. However, the project area does not provide high quality habitat for migrating birds. The project would not create a barrier to movement of migratory species or alter the character of existing habitat available to migrating birds. All of the proposed facilities would be built within the existing disturbed SRWTP site within the core facility area of the SRWTP, which is surrounded by higher quality habitat on the adjacent Bufferlands. Because higher quality foraging habitat would be available nearby in the Bufferlands and surrounding areas and the project is located within a previously disturbed area, the relatively small amount of permanent and temporary disturbance associated with the proposed project would not result in substantial effects on wildlife movement patterns. Additionally, areas that would be affected by construction within the project area are not known to contain native wildlife nursery sites, such as colonial bird rookeries or bat roosts.

Although the project would not require tree removal, implementation of the project could adversely affect common migratory birds through disturbance during the breeding season. Loss of active nests of common species would be inconsistent with the MBTA and California Fish and Game Code, which both include protections for many common species not otherwise protected under federal, state, or local laws. The proposed project's potential loss of active nests of common species during project construction would be limited to those few nests that are present in proximity to noise, dust, or visual disturbances during construction and this loss would not substantially reduce the abundance of any species, nor cause any species to drop below self-sustaining levels. As such, potential adverse effects on common migratory birds and California Fish and Game Code-protected birds would not constitute a significant impact. In addition, potential impacts to common nesting bird species would be addressed through implementation of Mitigation Measures 3.2-1a through 3.2-1c. Therefore, impacts related to interference with movement corridors or nursery sites would be **less than significant**.

Mitigation Measures

No additional mitigation measures are necessary.

Impact 3.2-3: Conflict with Local Policies and Ordinances

The Sacramento County General Plan, Sacramento County Swainson's Hawk Ordinance, and Sacramento County Tree Preservation Ordinance contain policies that protect biological resources. Although implementation of the project has the potential to result in disturbance for sensitive species, these impacts would be avoided or reduced to a less-than-significant level through implementation of Mitigation Measures 3.2-1a through 3.2-1c. Therefore, potential conflicts with local policies and ordinances would be **less than significant.**

Project development would not require removal of any trees. Therefore, the project would not conflict with the Sacramento County Tree Protection Ordinance. The Sacramento County General Plan includes policies protecting biological resources, such as sensitive habitats and trees, and the Sacramento County Swainson's Hawk Ordinance is aimed at protecting Swainson's hawk foraging habitat (Sacramento County 2011; Swainson's Hawk Technical Advisory Committee 2000). The project would not affect any sensitive habitats including, riparian habitat or wetlands. Although the project does have the potential to result in disturbance of sensitive species addressed in the Sacramento County General Plan and Sacramento County Swainson's Hawk Ordinance, potential impacts to sensitive species would be avoided or reduced to a less-than-significant level through implementation of Mitigation Measures 3.2-1a through 3.2-1c. Therefore, potential conflicts with local policies and ordinances would be **less than significant**.

Mitigation Measures

No additional mitigation measures are necessary.

Impact 3.2-4: Conflict with South Sacramento Habitat Conservation Plan

The project area is within the covered area of the SSHCP. Take of state or federally listed species as a result of the project is not anticipated and the proposed project is not seeking coverage under the SSHCP as a Covered Activity. All six special-status wildlife species that may occur in the project area or in the adjacent area during breeding season are covered under the SSHCP. Although potential loss of bird nests may occur due to disturbance from construction activities, the project area is within the Urban Development Area of the SSHCP, and the impacts to covered species are being mitigated according to the AMMs in the SSHCP. Therefore, the project would not conflict with the SSHCP. There would be **no impact**.

The project area is within the covered SSHCP area and is designated as an Urban Development Area. The SSHCP was adopted in 2019. This HCP includes a multi-jurisdictional group of partners, including Regional San, Sacramento County, the cities of Rancho Cordova and Galt, the Sacramento County Water Agency, and Capital SouthEast Connector Joint Powers Authority. The SSHCP's aim is to preserve natural lands in Sacramento County and protect habitat for 28 special-status plant and animal species, including the 10 state and federally listed species included in Table 3.2-2. All six of the special-status wildlife species that may occur in the project area or in the adjacent area during the breeding season are covered under the SSHCP. As mentioned above in Impact 3.2-1, potential loss of bird nests of protected species under the SSHCP may occur due to disturbance from construction activities. Loss of nests could include nest abandonment, failure, and/or mortality of chicks or eggs. These impacts would be avoided or reduced to a less-than-significant level through implementation of Mitigation Measures 3.2-1a through 3.2-1c, which are consistent with the AMMs in the SSHCP. Because the project would implement mitigation measures consistent with the SSHCP AMMs and no take of state or federally listed species is anticipated, the proposed project would not conflict with the SSHCP. Therefore, the impact would be **no impact.**

Mitigation Measures

No additional mitigation measures are necessary.

3.3 CULTURAL AND TRIBAL CULTURAL RESOURCES

This section evaluates potential impacts of the project on known and unknown cultural, archaeological, and tribal cultural resources. Cultural resources include districts, sites, buildings, structures, or objects generally older than 50 years and considered to be important to a culture, subculture, or community for scientific, traditional, religious, or other reasons. They include pre-historic resources, historic-period resources, and "tribal cultural resources" (the latter as defined by Assembly Bill (AB) 52, Statutes of 2014, in Public Resources Code [PRC] Section 21074).

Archaeological resources are locations where human activity has measurably altered the earth or left deposits of prehistoric or historic-period physical remains (e.g., stone tools, bottles, former roads, house foundations). Historical (or built-environment) resources include standing buildings (e.g., houses, barns, outbuildings, cabins) and intact structures (e.g., dams, bridges, roads, districts), or landscapes. A cultural landscape is defined as a geographic area (including both cultural and natural resources and the wildlife therein), associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values. Tribal cultural resources are sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a tribe.

3.3.1 Regulatory Setting

FEDERAL

National Register of Historic Places

The National Register of Historic Places (NRHP) is the nation's master inventory of known historic properties. It is administered by the National Park Service and includes listings of buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archaeological, or cultural significance at the national, state, or local level.

The formal criteria (36 CFR 60.4) for determining NRHP eligibility are as follows:

1. The property is at least 50 years old (however, properties under 50 years of age that are of exceptional importance or are contributors to a district can also be included in the NRHP);
2. It retains integrity of location, design, setting, materials, workmanship, feeling, and associations; and
3. It possesses at least one of the following characteristics:

   Criterion A Is associated with events that have made a significant contribution to the broad patterns of history (events).

   Criterion B Is associated with the lives of persons significant in the past (persons).

   Criterion C Embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant, distinguishable entity whose components may lack individual distinction (architecture).

   Criterion D Has yielded, or may be likely to yield, information important in prehistory or history (information potential).

For a property to retain and convey historic integrity it must possess most of the seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association. Location is the place where the historic property was constructed or the place where a historic event occurred. Integrity of location refers to whether the property has been moved since its construction. Design is the combination of elements that create the form, plan, space, structure, and style of a property. Setting is the physical environment of a historic property that illustrates the character of the place. Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property. Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory. Feeling is a property's expression of

the aesthetic or historic sense of a particular period of time. This is an intangible quality evoked by physical features that reflect a sense of a past time and place. Association is the direct link between the important historic event or person and a historic property. Continuation of historic use and occupation help maintain integrity of association.

Listing in the NRHP does not entail specific protection or assistance for a property but it does guarantee consideration in planning for federal or federally-assisted projects, eligibility for federal tax benefits, and qualification for federal historic preservation assistance. Additionally, project effects on properties listed in the NRHP must be evaluated under CEQA.

The National Register Bulletin series was developed to assist evaluators in the application of NRHP criteria. For example, National Register Bulletin #36 provides guidance in the evaluation of archaeological site significance. If a property cannot be placed within a particular theme or time period, and thereby lacks "focus," it will be unlikely to possess characteristics that would make it eligible for listing in the NRHP. Evaluation standards for linear features (such as roads, trails, fence lines, railroads, ditches, and flumes) are considered in terms of four related criteria that account for specific elements that define engineering and construction methods of linear features: (1) size and length, (2) presence of distinctive engineering features and associated properties, (3) structural integrity, and (4) setting. The highest probability for NRHP eligibility exists in the intact, longer segments, where multiple criteria coincide.

STATE

California Register of Historical Resources

All properties in California that are listed in or formally determined eligible for listing in the NRHP are also listed in the California Register of Historical Resources (CRHR). The CRHR is a listing of State of California resources that are significant in the context of California's history. It is a Statewide program with a scope and with criteria for inclusion similar to those used for the NRHP. In addition, properties designated under municipal or county ordinances are also eligible for listing in the CRHR.

A historical resource must be significant at the local, state, or national level under one or more of the criteria defined in the California Code of Regulations Title 15, Chapter 11.5, Section 4850 to be included in the CRHR. The CRHR criteria are tied to CEQA because any resource that meets the criteria below is considered a significant historical resource under CEQA. As noted above, all resources listed in or formally determined eligible for listing in the NRHP are automatically listed in the CRHR.

The CRHR uses four evaluation criteria:

Criterion 1. Is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States.

Criterion 2. Is associated with the lives of persons important to local, California, or national history.

Criterion 3. Embodies the distinctive characteristics of a type, period, region, or method of construction; represents the work of a master; or possesses high artistic values.

Criterion 4. Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California or the nation.

Similar to the NRHP, a historical resource must meet one of the above criteria and retain integrity to be listed in the CRHR. The CRHR uses the same seven aspects of integrity used by the NRHP.

California Environmental Quality Act

CEQA requires public agencies to consider the effects of their actions on "historical resources," "unique archaeological resources," and "tribal cultural resources." Pursuant to PRC Section 21084.1, a "project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." Section 21083.2 requires agencies to determine whether projects would have effects on unique archaeological resources.

PRC Section 21084.2 establishes that "[a] project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment."

Historical Resources

"Historical resource" is a term with a defined statutory meaning (PRC Section 21084.1; State CEQA Guidelines Sections 15064.5[a] and [b]). Under State CEQA Guidelines Section 15064.5(a), historical resources include the following:

1) A resource listed in, or determined to be eligible by the State Historical Resources Commission for listing in, the CRHR (PRC Section 5024.1).

2) A resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g), will be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

3) Any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be a historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource will be considered by the lead agency to be historically significant if the resource meets the criteria for listing in the CRHR (PRC Section 5024.1).

4) The fact that a resource is not listed in or determined to be eligible for listing in the CRHR, not included in a local register of historical resources (pursuant to PRC Section 5020.1[k]), or identified in a historical resources survey (meeting the criteria in PRC Section 5024.1[g]) does not preclude a lead agency from determining that the resource may be a historical resource as defined in PRC Sections 5020.1(j) or 5024.1.

Unique Archaeological Resources

CEQA also requires lead agencies to consider whether projects will affect unique archaeological resources. PRC Section 21083.2(g) states that "unique archaeological resource" means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets one or more of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Tribal Cultural Resources

CEQA also requires lead agencies to consider whether projects will affect tribal cultural resources. PRC Section 21074 states:

a) "Tribal cultural resources" are either of the following:

   1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:

      A) Included or determined to be eligible for inclusion in the California Register of Historical Resources.

      B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.

   2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.

c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

Public Resources Code Section 21080.3

AB 52, signed by the California Governor in September of 2014, established a new class of resources under CEQA: "tribal cultural resources," defined in PRC Section 21074. Pursuant to PRC Sections 21080.3.1, 21080.3.2, and 21082.3, lead agencies undertaking CEQA review must, upon written request of a California Native American Tribe, begin consultation before the release of an EIR, negative declaration, or mitigated negative declaration.

PRC Section 21080.3.2 states:

> Within 14 days of determining that a project application is complete, or to undertake a project, the lead agency must provide formal notification, in writing, to the tribes that have requested notification of proposed projects in the lead agency's jurisdiction. If it wishes to engage in consultation on the project, the tribe must respond to the lead agency within 30 days of receipt of the formal notification. The lead agency must begin the consultation process with the tribes that have requested consultation within 30 days of receiving the request for consultation. Consultation concludes when either: 1) the parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource, or 2) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached.

California Native American Historical, Cultural, and Sacred Sites Act

The California Native American Historical, Cultural, and Sacred Sites Act (PRC Section 5097.9) applies to both State and private lands. The act requires, upon discovery of human remains, that construction or excavation activity cease and that the county coroner be notified. If the remains are those of a Native American, the coroner must notify the Native American Heritage Commission (NAHC), which notifies and has the authority to designate the most likely descendant (MLD) of the deceased. The act stipulates the procedures the descendants may follow for treating or disposing of the remains and associated grave goods.

Health and Safety Code, Sections 7050.5

Section 7050.5 of the Health and Safety Code requires that construction or excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If they are determined to be those of a Native American, the coroner must contact NAHC.

Public Resources Code, Section 5097

PRC Section 5097 specifies the procedures to be followed if human remains are unexpectedly discovered on nonfederal land. The disposition of Native American burials falls within the jurisdiction of NAHC. Section 5097.5 of the code states:

> No person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

LOCAL

Sacramento County General Plan

The Sacramento County General Plan contains policies and actions relevant to the inventory, protection, and enhancement of significant archaeological and historical resources. Relevant policies and actions include the following:

- **Policy CO-156**: Refer projects with identified archaeological and cultural resources to the Cultural Resources Committee to determine significance of resource and recommend appropriate means of protection and mitigation. The Committee shall coordinate with the Native American Heritage Commission in developing recommendations.
- **Policy CO-158**: Native American burial sites encountered during preapproved survey or during construction shall, whenever possible, remain in situ. Excavation and reburial shall occur when in situ preservation is not possible or when the archaeologic significance of the site merits excavation and recording procedure. Onsite reinterment shall have priority. The project developer shall provide the burden of proof that off-site reinterment is the only feasible alternative. Reinterment shall be the responsibility of local tribal representatives.
- **Policy CO-159**: The cost of all excavation conducted prior to completion of the project shall be the responsibility of the project developer.
- **Policy CO-160**: Monitor projects during construction to ensure crews follow proper reporting, safeguards, and procedure
- **Policy CO-161**: As a condition of approval of discretionary permits, a procedure shall be included to cover the potential discovery of archaeological resources during development or construction.
- **Policy CO-162**: As a condition of approval for discretionary projects which are in areas of cultural resource sensitivity, the following procedure shall be included to cover the potential discovery of archaeological resource during development or construction:
  - Should any cultural resources, such as structural features, unusual amounts of bone or shell, artifacts, human remains, or architectural remains be encountered during any development activities, work shall be suspended and the Sacramento County Department of Environmental Review and Assessment shall be immediately notified. At that time, the Department of Environmental Review and Assessment will coordinate any necessary investigation of the site with appropriate specialists, as needed. The project proponent shall be required to implement any mitigation deemed necessary for the protection of the cultural resources. In addition, pursuant to Section 5097.98 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work is to stop and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains.
- **Policy CO-163**: Conduct surveys and designate structures with architectural or historical importance on community plan maps. Where appropriate, plans shall designate significant historical architectural districts.
- **Policy CO-165**: Refer projects involving structures or within districts having historical or architectural importance to the Cultural Resources Committee to recommend appropriate means of protection and mitigation.

3.3.2 Environmental Setting

REGIONAL PREHISTORY

Although human occupation of the Central Valley may extend back 10,000 before present (B.P.), reliable evidence of such an early human presence is lacking and may be deeply buried. The prehistoric setting can be categorized into the following periods.

The Paleo-Indian Period: The Paleo-Indian Period (12,000 to 10,500 B.P.) saw the first demonstrated entry and spread of humans into California. Characteristic artifacts recovered from archaeological sites of this time period include fluted projectile points (constructed from chipped stones that have a long groove down the center called a "flute") and large, roughly fashioned cobble and bifacially-flaked stone tools that were used in hunting the mastodon, bison, and mammoth that roamed the land during this time.

The Lower Archaic Period: The beginning of the Lower Archaic Period (10,500 to 7,500 B.P.) coincides with that of the Middle Holocene climatic change that resulted in widespread floodplain deposition. This episode resulted in most of the early archaeological deposits being buried. Most tools were manufactured of local materials, and distinctive artifact types include large dart points and the milling slab and handstone.

The Middle Archaic Period: The Middle Archaic Period (7,500 to 2,500 B.P.) is characterized by warm, dry conditions that brought about the drying up of pluvial lakes. Economies were more diversified and may have included the introduction of acorn processing technology, although hunting remained an important source of food. Artifacts characteristic of this period include milling stones and pestles and a continued use of a variety of implements interpreted as large dart points.

The Upper Archaic Period: The Upper Archaic Period (2,500 to 850 B.P.) corresponds with a sudden turn to a cooler, wetter and more stable climate. The development of status distinctions based upon wealth is well documented in the archaeological record. The development of specialized tools, such as bone implements and stone plummets, as well as manufactured shell goods, were prolific during this time. The regional variance of economies was largely because of the seasonality of resources that were harvested and processed in large quantities.

The Emergent Period: Several technological and social changes distinguish the Emergent Period (850 B.P. to Historic) from earlier cultural manifestations. The bow and arrow were introduced, ultimately replacing the dart and throwing spear, and territorial boundaries between groups became well established. In the latter portion of this Period (450 to 1,800 B.P.), exchange relations became highly regularized and sophisticated. The clam disk bead developed as a monetary unit of exchange and increasing quantities of goods moved greater distances. It was at the end of this Period that contact with Euroamericans became commonplace, eventually leading to intense pressures on Native American populations.

ETHNOGRAPHY

The project area is historically attributed to the Plains Miwok, a subgroup of the Eastern Miwok. Historic maps and accounts of early travelers to the Sacramento Valley testify that the valley consisted of open grasslands and occasional oak groves, with abundant elk. The area was generally wet in winter and exceedingly dry in summer. Native Americans typically situated their larger, permanent settlements on high ground along the region's major rivers, such as the Cosumnes, to the east of the project area (Regional San 2020:16).

The Plains Miwok are part of the larger Eastern Miwok language group who form one of the two major divisions of the Miwokan subgroup of Utian speakers. Plains Miwok speakers lived in the Central Valley along the Sacramento, Cosumnes, and Mokelumne Rivers, and built their homes on high ground, with principal villages concentrated along major drainages. Plains Miwok speakers lived in semi-autonomous villages, or village clusters, that were largely economically, politically, and socially independent from one another; though villages participated in some shared regional religious and trade networks. Larger villages had an assembly house, a 40 to 50-foot-diameter semi-subterranean structure, in addition to a sweathouse, a smaller version of the assembly house (Regional San 2020:16).

Seasonality defined Plains Miwok subsistence strategies, and their economy was based principally on the use of natural resources from the grasslands and riparian corridors adjacent to the area's many drainages. As with most California Native American groups, the Plains Miwok relied heavily on acorn for food. Other non-animal foods consisted of nuts, seeds, roots, greens, berries, and mushrooms. Animal foods included deer, tule elk, pronghorn antelope, jackrabbit, squirrel, beaver, quail, and waterfowl. Salmon was the principal animal food for the Plains Miwok, ranking above other river resources such as sturgeon. Nuts, basketry, and obsidian were obtained through trade with the Sierra Miwok to the east and salt, shells, basketry, and bows were obtained in turn through trade from the west. Wooden digging sticks, poles, and baskets were used for gathering vegetal resources, while stone mortars, pestles, and cooking stones were used for processing foods. Items used for obtaining animal resources included nets, snares, seines, bows, and arrows. Arrow points were primarily made of basalt and obsidian (Regional San 2020:16).

As with other California Native American groups, the California Gold Rush of 1849 had a devastating effect on the Plains Miwok. The flood of miners that came to the area in search of gold brought diseases with them that decimated the Native populations. Those who survived were subjected to violence and prejudice at the hands of the miners, and the Plains Miwok eventually were pushed out of their ancestral territory. Although this contact with settlers had a profound

negative impact on the Native American population through disease and violent actions, the Plains Miwok people survived and continue to maintain strong communities and action-oriented organizations (Regional San 2020:16).

HISTORIC SETTING

Regional History

The Spanish made forays into the Central Valley starting in the mid-18th century, and the earliest significant non-indigenous presence in the region began in 1808 when Gabriel Moraga led an expedition from Mission San José to the northern Sacramento Valley. By the late 1820s, English, American, and French fur trappers, attracted by the Valley's abundance of animal life, had established operations throughout the region. The earliest Euro-American settlement of the area occurred in the 1840s with the establishment of land grants by the Mexican government. In 1839, John Sutter, born in Germany to Swiss parents, became a Mexican citizen and obtained Governor Juan B. Alvarado's permission to establish a settlement in the California interior. Sutter left Yerba Buena (modern day San Francisco) in August of 1839, traveling up the Sacramento River in search of a site for his estate. Sutter arrived at the confluence of the American and Sacramento rivers, established a settlement, and received the first land grant in the region in 1841 for his New Helvetia Rancho. The New Helvetia Rancho encompassed 97 square miles and included lands on the east bank of the Feather and Sacramento Rivers. Sutter established Sutter's Fort, and developed fisheries, a flourmill, and a lumber mill (Regional San 2020:17).

The Sacramento Valley remained relatively isolated and sparsely populated until the gold rush. Given Sacramento's proximity to mining areas, and its accessibility to maritime traffic, the area quickly became a trading and economic center. Commerce along the Sacramento River encouraged continued population growth, with many of the miners and farmers settling along the natural levees of the Sacramento River. Settlers recognized that the active flood plain deposited fertile soils in the lands nearest to the river, which supported bountiful crops and provided easy access to transportation corridors along the river itself. Ranchers and farmers found economic success in providing food and supplies for the miners, although frequent flooding troubled settlers' agricultural efforts and additional settlement (Regional San 2020:17).

The Elk Grove area was part of the Rancho Omochumnes land grant, an 18,662-acre Mexican land grant awarded to Jared Dixon Sheldon in 1844. The community of Elk Grove was originally established as a stage stop on the Monterey Trail, connecting the Stockton and Sacramento areas, providing services for travelers and the surrounding farming community. Wheat was the primary crop originally raised in the Cosumnes River region, but mining debris inundated local river systems as a result of upstream hydraulic mining in the late-nineteenth century, necessitating crop diversification (Regional San 2020:17).

ARCHAEOLOGICAL SENSITIVITY

Landforms that predate the earliest estimated periods for human occupation in the region are considered to have a very low potential for buried archaeological resources, while those that postdate human occupation are considered to have a higher potential for buried archaeological resources. Currently, archaeological research indicates that the earliest evidence for human occupation of California dates to the Late Pleistocene, which ended approximately 11,500 before present. Therefore, the potential for buried archaeological deposits in landforms from or predating the Late Pleistocene is very low. The project site and staging area are mapped as Pleistocene-age sediments. Because these sediments were deposited before human occupation in the area, the potential for buried archaeological resources representing past human use and occupation would be very low (Regional San 2020:24).

RECORDS SEARCHES AND CONSULTATION

A cultural resources records search was completed for the project at the North Central Information Center (NCIC) of the California Historical Resources Information System on December 15, 2020 (File No. SAC-20-175). The results of the NCIC search revealed no archaeological resources, built-environment historical resources, or previous reports within

the project area. One previously recorded historic-period resource, the Western Pacific Railway, is located outside of the project are but within the 0.8-mile search radius. Eight cultural reports have been conducted outside of the project area, but within the search radius.

The following information was reviewed as part of the records search:

- NRHP and CRHR,
- California Office of Historic Preservation Historic Property Directory,
- California Inventory of Historic Resources,
- California State Historic Landmarks,
- California Points of Historical Interest, and
- Historic properties reference map.

Tribal Cultural Resources

Native American Consultation

On November 5, 2020, Regional San sent notification letters that the project was being addressed under CEQA, as required by PRC Section 21080.3.1, to the three Native American tribes that had previously requested such notifications for projects in Sacramento County, Wilton Rancheria, United Auburn Indian Community (UAIC), and Ione Band of Miwok Indians. Wilton Rancheria responded requesting consultation; no tribal cultural resources were identified within the project area; however, the Tribe did indicate that the area is sensitive for tribal cultural resources and mitigation measures were requested. UAIC declined to consult, but also requested mitigation measures.

A record search of NAHC Sacred Lands File (SLF) was completed on October 26, 2020. The NAHC search indicated that the SLF was negative for the presence of Native American resources within the project area.

3.3.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

The impact analysis for archaeological and historical resources is based on the findings and recommendations of the *Sacramento Regional County Sanitation District Recycled Water Distribution Mains, Lateral Pipelines, and On-Farm Connections Project CEQA Cultural Resources Survey Report* (Regional San 2020) and the updated NCIC records search (File No. SAC-20-175). The analysis is also informed by the provisions and requirements of federal, state, and local laws and regulations that apply to cultural resources.

PRC Section 21083.2(g) defines a "unique archaeological resource" as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets one or more of the following CRHR-related criteria: (1) that it contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information; (2) that it as a special and particular quality, such as being the oldest of its type or the best available example of its type; or (3) that it is directly associated with a scientifically recognized important prehistoric or historic event or person. An impact on a resource that is not unique is not a significant environmental impact under CEQA (State CEQA Guidelines Section 15064.5[c][4]). If an archaeological resource qualifies as a resource under CRHR criteria, then the resource is treated as a unique archaeological resource for the purposes of CEQA.

PRC Section 21074 defines "tribal cultural resources" as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" that are listed or determined eligible for listing in the CRHR, listed in a local register of historical resources, or otherwise determined by the lead agency to be a tribal cultural resource.

For the purposes of the impact discussion, "historical resource" is used to describe built-environment historic-period resources. Archaeological resources (both prehistoric and historic-period), which may qualify as "historical resources" pursuant to CEQA, are analyzed separately from built-environment historical resources.

THRESHOLDS OF SIGNIFICANCE

Based on Appendix G of the State CEQA Guidelines, the project would result in a significant impact on cultural and tribal cultural resources if it would:

- cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5 of the State CEQA Guidelines;
- cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the State CEQA Guidelines;
- cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe; or
- disturb any human remains, including those interred outside of formal cemeteries.

ISSUES NOT DISCUSSED FURTHER

As described above, no historical resources were identified within the project area. The records search revealed no previously recorded historical resources within the project area and no built environment structures or objects that appeared to be 45 years or older are located within the project area. Therefore, project construction and operation would have no impact on historical resources. This issue is not analyzed further.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.3-1: Cause a Substantial Adverse Change in the Significance of Unique Archaeological Resources

Although the NCIC records search did not reveal any previously identified archaeological resources and the project area has a low sensitivity for buried resources, project-related ground-disturbing activities could result in discovery or damage of yet undiscovered archaeological resources as defined in State CEQA Guidelines Section 15064.5. This would be a **potentially significant** impact.

The NCIC records search revealed that no known prehistoric or historic-period archaeological sites have been documented within the project area. As described previously, the project area is mapped as Pleistocene-age sediments. Because these sediments were deposited before human occupation in the area, the potential for buried archaeological resources representing past human use and occupation would be very low. In addition, abandonment and demolition of utilities would be contained within existing concrete vaults and would not require excavation. As described in Chapter 2, "Project Description," the project includes environmental commitment measures that will be implemented by Regional San during project construction activities. EC-1, Develop and implement a Cultural and Paleontological Resource Worker Environmental Awareness Program, would require that a qualified archaeologist, in coordination with representatives from Native American Tribes culturally affiliated with the project area, develop a construction worker tribal cultural resources awareness brochure for all construction personnel and supervisors who will have the potential to encounter and tribal and cultural resources.

Nevertheless, there is the potential that ground disturbance within the project area during proposed project construction (especially excavation for foundations and new utilities) could encounter previously undiscovered or unrecorded archaeological sites and materials. These activities could damage or destroy previously undiscovered archaeological resources. This would be a **potentially significant** impact.

Mitigation Measures

Mitigation Measure 3.3-1: Discoveries of Archaeological Resources

If a prehistoric archeological site (such as any unusual amounts of stone, bone, or shell) or a historic-period archaeological site (such as concentrated deposits of bottles or bricks, amethyst glass, or other historic refuse), is uncovered during grading or other construction activities, all ground-disturbing activity within 100 feet of the discovery will be halted until a qualified archaeologist can assess the significance of the find. Regional San will be notified of the potential find and a qualified archeologist will be retained to investigate its significance. If the find is a prehistoric archeological site, the appropriate Native American group will be notified, and Mitigation Measure 3.3.3-2 will be implemented. Any previously undiscovered resources found during construction will be recorded on appropriate California Department of Parks and Recreation 523 forms and evaluated for significance under all applicable regulatory criteria. If the archaeologist determines that the find does not meet the CRHR standards of significance for cultural resources, construction may proceed. If the find is determined to be significant by the qualified archaeologist (i.e., because the find is determined to constitute either an historical resource or a unique archaeological resource), the archaeologist will work with Regional San to follow accepted professional standards such as further testing for evaluation or data recovery, as necessary. If artifacts are recovered from significant historic archaeological resources, they will be housed at a qualified curation facility. The results of the identification, evaluation, and/or data recovery program for any unanticipated discoveries will be presented in a professional-quality report that details all methods and findings, evaluates the nature and significance of the resources, and analyzes and interprets the results.

Significance after Mitigation

Implementation of EC-1 and Mitigation Measure 3.3-1 would reduce impacts to archaeological cultural resources to a **less-than-significant** level by requiring the implementation of professionally accepted and legally compliant procedures for preservation options and proper curation if significant artifacts are recovered.

Impact 3.3-2: Cause a Substantial Adverse Change in the Significance of a Tribal Cultural Resource

Although the NAHC SLF was negative and neither UAIC nor Wilton Rancheria identified a tribal cultural resource within the project area, consultation with Wilton Rancheria revealed that the project area is considered culturally sensitive. Therefore, it is possible that yet-undiscovered tribal cultural resources could be encountered or damaged during ground-disturbing construction activities. This impact would be **potentially significant**.

Regional San sent AB 52 notification letters to Wilton Rancheria, UAIC, and Ione Band of Miwok Indians. Wilton Rancheria responded requesting consultation; no tribal cultural resources were identified by the Tribe; however, the Tribe did indicate that the area is sensitive for tribal cultural resources and mitigation measures were requested. UAIC declined to consult, but also requested mitigation measures. The NAHC search indicated that the SLF was negative for the presence of Native American resources within the project area.

Although the NAHC SLF was negative and no tribal cultural resources as defined by PRC Section 21074 were identified within the project area, consultation revealed that the project area is considered culturally sensitive. As described in Chapter 2, "Project Description," the project includes environmental commitment measures that will be implemented by Regional San during project construction activities. EC-1, Develop and implement a Cultural and Paleontological Resource Worker Environmental Awareness Program, would require that a qualified archaeologist, in coordination with representatives from Native American Tribes culturally affiliated with the project area, develop a construction worker tribal cultural resources awareness brochure for all construction personnel and supervisors who will have the potential to encounter and tribal and cultural resources. Nevertheless, it is possible that yet-undiscovered tribal cultural resources could be encountered or damaged during ground-disturbing construction activities. This impact would be **potentially significant**.

Mitigation Measures

Mitigation Measure 3.3-2: Discoveries of Potential Tribal Cultural Resources

If any suspected tribal cultural resources are discovered during ground disturbing construction activities within the project area, including midden soil, artifacts, chipped stone, exotic rock (nonnative), or unusual amounts of baked clay, shell, or bone, all work shall cease within 100 feet of the find. Appropriate tribal representative(s) will be immediately notified and will determine if the find is a tribal cultural resource (pursuant to PRC Section 21074). The tribal representative will make recommendations for further evaluation and treatment, as necessary.

Preservation in place is the preferred alternative under CEQA and the tribes' protocols, and every effort must be made to preserve the resources in place, including through project redesign. Culturally appropriate treatment may be, but is not limited to, processing materials for reburial, minimizing handling of cultural objects, leaving objects in place within the landscape, returning objects to a location within the project vicinity where they will not be subject to future impacts. The Tribe does not consider curation of tribal cultural resources to be appropriate or respectful and requests that materials not be permanently curated, unless approved by the Tribe. Treatment that preserves or restores the cultural character and integrity of a tribal cultural resource may include tribal monitoring, culturally appropriate recovery of cultural objects, and reburial of cultural objects or cultural soil.

Significance after Mitigation

Implementation of EC-1 and Mitigation Measure 3.3-2 would reduce impacts to tribal cultural resources to a **less-than-significant** level by requiring measures that were developed in conjunction with traditionally affiliated tribes to require appropriate treatment and proper care of significant tribal cultural resources, in the case of a discovery.

Impact 3.3-3: Disturb Human Remains

Based on documentary research, no evidence suggests that any prehistoric or historic-period marked or un-marked human interments are present within or in the immediate vicinity of the project area. However, ground-disturbing construction activities could uncover previously unknown human remains. Compliance with California Health and Safety Code Section 7050.5 and California Public Resources Code Section 5097 would make this impact **less than significant**.

Based on documentary research, no evidence suggests that any prehistoric or historic-period marked or un-marked human interments are present within or in the immediate vicinity of the project area. However, the location of grave sites and Native American remains can occur outside of identified cemeteries or burial sites. Therefore, there is a possibility that unmarked, previously unknown Native American or other graves could be present within the project area and could be uncovered by project-related construction activities. California law recognizes the need to protect Native American human burials, skeletal remains, and items associated with Native American burials from vandalism and inadvertent destruction. The procedures for the treatment of Native American human remains are contained in California Health and Safety Code Section 7050.5 and PRC Section 5097.

These statutes require that, if human remains are discovered, potentially damaging ground-disturbing activities in the area of the remains shall be halted immediately, and the appropriate County coroner shall be notified immediately. If the remains are determined by the coroner to be Native American, NAHC shall be notified within 24 hours and the guidelines of the NAHC shall be adhered to in the treatment and disposition of the remains. Following the coroner's findings, the NAHC-designated Most Likely Descendant, and the landowner shall determine the ultimate treatment and disposition of the remains and take appropriate steps to ensure that additional human interments, if present, are not disturbed. The responsibilities for acting upon notification of a discovery of Native American human remains are identified in PRC Section 5097.94.

Compliance with California Health and Safety Code Section 7050.5 and PRC Section 5097 would provide an opportunity to avoid or minimize the disturbance of human remains, and to appropriately treat any remains that are discovered. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

3.4 GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

This section presents a summary of regulations applicable to greenhouse gas (GHG) emissions; a summary of climate change science and GHG sources in California; quantification of project generated GHGs and discussion about their contribution to global climate change, and an evaluation of project related GHG emissions.

3.4.1 Regulatory Setting

FEDERAL

Greenhouse Gas Mandatory Reporting Rule

The EPA issued the Greenhouse Gas Reporting Rule, which sets CO_2-based reporting criteria for certain industrial facilities. The rule applies to fossil fuel suppliers and industrial gas suppliers, direct GHG emitters and manufacturers of heavy-duty and offroad vehicles and engines. The rule is not intended to control emissions, but rather requires that sources above certain threshold levels monitor and report emissions (EPA 2021).

STATE

Plans, policies, regulations, and laws established by the state agencies are generally presented in the order they were established.

Executive Order S-3-05

In 2005, Executive Order (EO) S-3-05 was signed into law and proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra Nevada snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the EO established total GHG emission targets for the state. Specifically, statewide emissions are to be reduced to 2000 levels by 2010, 1990 levels by 2020, and 80 percent below 1990 levels by 2050.

Assembly Bill 32, the California Global Warming Solutions Act of 2006

In September 2006, the California Global Warming Solutions Act of 2006, Assembly Bill (AB) 32, was signed into law. AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. AB 32 also requires that "(a) the statewide greenhouse gas emissions limit shall remain in effect unless otherwise amended or repealed. (b) It is the intent of the Legislature that the statewide greenhouse gas emissions limit continue in existence and be used to maintain and continue reductions in emissions of greenhouse gases beyond 2020. (c) The State board [California Air Resources Board (CARB)] shall make recommendations to the Governor and the Legislature on how to continue reductions of greenhouse gas emissions beyond 2020" (California Health and Safety Code, Division 25.5, Part 3, Section 38551).

Climate Change Scoping Plan

In December 2008, CARB adopted its first version of its *Climate Change Scoping Plan,* which contained the main strategies California will implement to achieve the mandate of AB 32 (2006) to reduce statewide GHG emissions to 1990 levels by 2020. In May 2014, CARB released and subsequently adopted the *First Update to the Climate Change Scoping Plan* to identify the next steps in reaching the goals of AB 32 (2006) and evaluate the progress made between 2000 and 2012 (CARB 2014). After releasing multiple versions of proposed updates in 2017, CARB adopted the final version titled *California's 2017 Climate Change Scoping Plan* (2017 Scoping Plan) in December (CARB 2017a). The 2017 Scoping Plan Indicated that California was on track to achieve the 2020 statewide GHG target mandated by AB 32 of 2006 (CARB 2017a:9). It also lays out the framework for achieving the mandate of SB 32 of 2016 to reduce statewide GHG emissions to at least 40 percent below 1990 levels by the end of 2030 (CARB 2017a).

The 2022 Scoping Plan Update assesses progress towards achieving the Senate Bill 32 2030 target and lays out a path to achieve carbon neutrality no later than 2045. It identifies the reductions needed by each GHG emission sector (e.g., transportation [including off-road mobile source emissions], industry, electricity generation, agriculture, commercial and residential, pollutants with high global warming potential, and recycling and waste) to achieve these goals. The final plan was adopted by CARB in December 2022 (CARB 2022a).

Senate Bill 32 and Assembly Bill 197 of 2016

In August 2016, SB 32 and AB 197 were signed into law and serve to extend California's GHG reduction programs beyond 2020. SB 32 amended the Health and Safety Code to include Section 38566, which contains language to authorize CARB to achieve a statewide GHG emission reduction of at least 40 percent below 1990 levels by no later than December 31, 2030. SB 32 codified the targets established by EO B-30-15 for 2030, which set the next interim step in the State's continued efforts to pursue the long-term target expressed in EOs S-3-05 and B-30-15 of 80 percent below 1990 emissions levels by 2050.

Executive Order B-30-15

On April 20, 2015, EO B-30-15 was signed into law and established a California GHG reduction target of 40 percent below 1990 levels by 2030. The governor's EO aligns California's GHG reduction targets with those of leading international governments, such as the 28-nation European Union, which adopted the same target in October 2014. California achieved its target of returning emissions to 1990 levels 4 years earlier than mandated under AB32 (CARB 2022b). California's new emission reduction target of 40 percent below 1990 levels by 2030 sets the next interim step in the state's continuing efforts to pursue the long-term target expressed under EO S-3-05 to reach the goal of reducing emissions 80 percent below 1990 levels by 2050. This is in line with the scientifically established levels needed in the United States to limit global warming below 2 degrees Celsius, the warming threshold at which major climate disruptions are projected, such as super droughts and rising sea levels.

Senate Bill 375 of 2008

In September 2008, Senate Bill (SB) 375 was signed into law and aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires metropolitan planning organizations (MPOs) to adopt a Sustainable Communities Strategy (SCS) or Alternative Planning Strategy, showing prescribed land use allocation in each MPO's Regional Transportation Plan. CARB, in consultation with the MPOs, is to provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks for 2020 and 2035. The Sacramento Area Council of Governments (SACOG) serves as the MPO Sacramento, Placer, El Dorado, Yuba, Sutter, and Yolo Counties, excluding those lands located in the Lake Tahoe Basin. Under SB 375, SACOG adopted its most recent *Metropolitan Transportation Plan/Sustainable Communities Strategy* 2020 in 2019. SACOG was tasked by CARB to achieve a 19 percent per capita reduction compared to 2005 emissions by 2040, which CARB confirmed the region would achieve by implementing its SCS (SACOG 2019).

CARB's Mobile Source Strategy (2016) described California's strategy for containing air pollutant emissions from vehicles and quantifies growth in vehicle miles traveled (VMT) that is compatible with achieving state climate targets.

Cap-and-Trade Program

In 2011, CARB adopted the cap-and-trade regulations and created the cap-and-trade program. The program covers GHG emission sources that emit more than 25,000 metric tons of carbon dioxide equivalent per year ($MTCO_2e$/year), such as refineries, power plants, and industrial facilities. The cap-and-trade program includes an enforceable statewide emissions cap that declines approximately 3 percent annually. CARB distributes allowances, which are tradable permits, equal to the emissions allowed under the cap. Sources that reduce emissions more than their limits can auction carbon allowances to other covered entities through the cap-and-trade market. Sources subject to the cap are required to surrender allowances and offsets equal to their emissions at the end of each compliance period (CARB 2012). The cap-and-trade program took effect in early 2012 with the enforceable compliance obligation beginning January 1, 2013. The cap-and-trade program was initially slated to sunset in 2020, but the passage of SB 398 in 2017 extended the program through 2030.

Regulation for the Mandatory Reporting of Greenhouse Gas Emissions

Reporting of GHGs by major sources is also required by AB 32. Revisions to the regulation were approved by the California Office of Administrative Law and became effective on January 1, 2012. The revised regulation affects industrial facilities, suppliers of transportation fuels, natural gas, natural gas liquids, liquefied petroleum gas, and carbon dioxide, operators of petroleum and natural gas systems, and electricity retail providers and marketers. ARB's Regulation for the Mandatory Reporting of Greenhouse Gas Emissions (Title 17, California Code of Regulations (CCR), Sections 95100-95157) incorporated by reference certain requirements promulgated by EPA in its Final Rule on Mandatory Reporting of Greenhouse Gases (Title 40, Code of Federal Regulations, Part 98), discussed below. The regulation establishes mandatory GHG reporting requirements for owners and operators of certain facilities that directly emit GHG, including facilities that emit 25,000 $MTCO_2e$ per year.

Advanced Clean Cars Program

In January 2012, CARB approved the Advanced Clean Cars program, which combines the control of GHG emissions and criteria air pollutants, as well as requirements for greater numbers of zero-emission vehicles (ZEVs), into a single package of regulatory standards for vehicle model years 2017– 2025. The new regulations strengthen the GHG standards for 2017 models and beyond. This will be achieved through existing technologies, the use of stronger and lighter materials, and more efficient drivetrains and engines. The program's ZEV regulation requires battery, fuel cell, and plug-in hybrid electric vehicles to account for up to 15 percent of California's new vehicle sales by 2025 (CARB 2016a:15). The program also includes a clean fuels outlet regulation designed to support the commercialization of zero-emission hydrogen fuel cell vehicles planned by vehicle manufacturers by 2015 by requiring increased numbers of hydrogen fueling stations throughout the state. The number of stations will grow as vehicle manufacturers sell more fuel cell vehicles. By 2025, when the rules will be fully implemented, GHG emissions from the statewide fleet of new cars and light-duty trucks will be reduced by 34 percent, and cars will emit 75 percent less smog-forming pollution than the statewide fleet in 2016 (CARB 2016b:1).

CARB adopted the Advanced Clean Cars II (ACC II) program in August 2022, which sets sales requirements for ZEVs to ultimately reach the goal of 100 percent ZEV sales in the state by 2035. The main objectives of ACC II are to maximize criteria emission reductions through increased stringency and real-world reductions, and to accelerate the transition to ZEVs through both increased stringency of requirements and associated actions to support wide-scale adoption and use.

Executive Order E-79-20

EO N-79-20, signed in September 2020, establishes ZEV targets for the transportation sector, including 100 percent of in-state sales of new passenger cars and trucks will be ZEV 2035, 100 percent of medium- and heavy-duty vehicles will be zero-emission by 2035 and 2045 ((where feasible, depending on their use), and 100 percent of off-road vehicles and equipment will be ZEV by 2035 (where feasible). This EO also tasked CARB to develop and propose regulations that require increasing volumes of ZE passenger vehicles, medium- and heavy-duty vehicles, drayage trucks, and off-road vehicles toward their corresponding targets of 100 percent zero-emission by 2035 or 2045, as listed above. The Scoping Plan modeling reflects achieving these targets. The ACCII regulation discussed above address this EO, and the 2022 Scoping Plan includes the ZEV targets in its emissions forecast (CARB 2022a).

California Renewables Portfolio Standard

SB X1-2 of 2011 requires all California utilities to generate 33 percent of their electricity from renewables by 2020. SB 100 of 2018 sets a three-stage compliance period requiring all California utilities, including independently owned utilities, energy service providers, and community choice aggregators, to generate 52 percent of their electricity from renewables by December 31, 2027; 60 percent by December 31, 2030; and 100 percent carbon-free electricity by December 31, 2045.

Short-Lived Climate Pollutant Reduction Strategy

Pursuant to SB 1383 of 2016, CARB adopted the *Short-Lived Climate Pollutant (SLCP) Reduction Strategy*, which is part of CARB's 2022 Scoping Plan and is California's plan for reducing emissions of high global-warming potential gases with short atmospheric lifetimes, including methane. As one of its measures, the strategy strives to reduce GHG emissions and displace fossil-based natural gas (CARB 2017b; CARB 2017a:3). It calls for the use of anaerobic

digestion facilities at wastewater treatment plants to produce methane and the use of this methane to generate electricity (CARB 2017b:77–78).

Under existing conditions, the digester gas generated by Regional San's anaerobic digesters is used by the Sacramento Municipal Utility District (SMUD) at two of its power plants. SMUD pipes most of the digester gas to its Cosumnes Power Plant, located near its Rancho Seco Facility in Herald, California. However, SMUD also uses some of the digester gas at the Carson Cogeneration (Cogen) Plant which is adjacent to the SRWTP. SMUD claims credits towards its obligations under the Renewable Portfolio Standard (RPS) Program for the digester gas it uses to generate electricity at the Cosumnes Power Plant; however, SMUD does not claim RPS credit for the lesser amount of digester gas it uses at the Carson Cogen Plant (CEC 2017; Cutlip, pers. comm. 2021).

LOCAL

The project area is located in unincorporated Sacramento County; therefore, the County's policies pertaining to climate change are germane.

Sacramento County 2030 General Plan

The *Sacramento County General Plan of 2005-2030* includes the following policies related to reducing GHG emissions in Sacramento County (County) (County of Sacramento 2020):

- **Policy AQ-4:** Developments which meet or exceed thresholds of significance for ozone precursor pollutants, and/or Greenhouse Gases (GHG) as adopted by the Sacramento Metropolitan Air Quality Management District (SMAQMD), shall be deemed to have a significant environmental impact. An Air Quality Mitigation Plan and/or a Greenhouse Gas Reduction Plan shall be submitted to the County of Sacramento prior to project approval, subject to review and recommendation as to technical adequacy by the Sacramento Metropolitan Air Quality Management District.
- **Policy AQ-22:** Reduce greenhouse gas emissions from County operations as well as private development.

Local Climate Action Plans

Most of the local jurisdictions served by Regional San have established their own plans for reducing GHGs, including Sacramento County, and the Cities of Sacramento, Elk Grove, Citrus Heights, Folsom, and West Sacramento. The City of Rancho Cordova and the communities of Courtland and Walnut Grove are also served by Regional San but have not prepared climate action plans. Each climate action plan establishes a local inventory of GHG emissions, adopts a GHG reduction target, and identifies GHG reduction measures for achieving these targets. Many of the GHG reduction measures in these local CAPs emphasize the need to reduce reliance on nonrenewable forms of energy and, conversely, encourage the use of renewable forms of energy, including solar and digester gas. While these local CAPs recognize the GHG emissions associated with the treatment of wastewater generated within their jurisdictions—treatment that is provided by Regional San—the local climate action plans do not include measures pertaining to how Regional San operates.

Sacramento County Climate Action Plan

The Sacramento County Climate Action Plan was adopted on November 9, 2011, by the Sacramento County Board of Supervisors. The plan includes a GHG inventory for the unincorporated county of Sacramento, GHG emissions targets, and goals and implementation measures developed to help the county and associated cities reach these targets. The plan includes goals for reducing GHG emissions associated with wastewater treatment. These goals state that the County should:

- Comply with state requirements as well as commitments in the Water Forum Agreement (a group of agencies, people, and governments in Sacramento that have joined sharing similar goals with regards to water supply and conservation) for water conservation and reduction in potable water demand. Achieve 20 percent reduction in statewide average per capita water use by 2020, in compliance with the state's water conservation requirements

(SBx7-7). Balance this with the Water Forum Agreement, which requires over 25 percent reduction in water demands from 1990 levels by 2030. Emphasize water use efficiency as a way to reduce energy consumption;

- Increase energy efficiency related to water system management; and
- Strive to reduce uncertainties in water reliability and quality by increasing the flexibility of the water allocation and distribution system to respond to drought conditions and encouraging redundancy in water storage, supply, and treatment systems (consistent with Water Forum Agreement). (County of Sacramento 2011)

The County is currently in the process of reviewing an updated to the County's Climate Action Plan with the final draft of the updated CAP released in August 2022 (County of Sacramento 2022). The updated CAP is expected to be adopted in 2023.

Sacramento Municipal Utility District 2030 Zero Carbon Plan

The Board of Directors for SMUD approved its 2030 Zero Carbon Plan in April 2021, pursuant to SMUD's Climate Emergency Declaration in July 2020. Under the Climate Emergency Declaration, SMUD's Board of Directors requested its staff to develop a plan to expedite reduction in the utility's carbon emissions. The 2030 Zero Carbon Plan establishes a zero-carbon goal for SMUD's energy portfolio by 2030, relying on additional investments in renewable energy technology, such as retiring or repurposing existing natural gas power plants to run on renewable fuels, expanding use of existing carbon-free technologies like wind, solar, hydropower, and battery storage (SMUD 2021).

3.4.2 Environmental Setting

THE PHYSICAL SCIENTIFIC BASIS OF GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the atmosphere from space. A portion of the radiation is absorbed by the earth's surface, and a smaller portion of this radiation is reflected toward space. The absorbed radiation is then emitted from the earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. The earth has a much lower temperature than the sun; therefore, the earth emits lower frequency radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth.

Prominent GHGs contributing to the greenhouse effect are CO_2, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Human-caused emissions of these GHGs in excess of natural ambient concentrations are found to be responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth's climate, known as global climate change or global warming. It is "extremely likely" that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in GHG concentrations and other anthropogenic forcing (IPCC 2014:5).

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. Whereas most pollutants with localized air quality effects have relatively short atmospheric lifetimes (approximately 1 day), GHGs have long atmospheric lifetimes (1 year to several thousand years). GHGs persist in the atmosphere long enough to be dispersed around the globe. Although the lifetime of any GHG molecule depends on multiple variables and cannot be determined with any certainty, it is understood that more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. Of the total annual human-caused CO_2 emissions, approximately 55 percent are estimated to be sequestered through ocean and land uptake every year, averaged over the last 50 years, whereas the remaining 45 percent of human-caused CO_2 emissions remain stored in the atmosphere (Intergovernmental Panel on Climate Change [IPCC] 2013:467).

The quantity of GHGs in the atmosphere responsible for climate change is not precisely known, but it is enormous. No single project alone would measurably contribute to an incremental change in the global average temperature or to global or local climates or microclimates. From the standpoint of CEQA, GHG impacts relative to global climate change are inherently cumulative.

GREENHOUSE GAS EMISSION SOURCES

As discussed previously, GHG emissions are attributable in large part to human activities. The total GHG inventory for California in 2019 was 418 million $MMTCO_2e$ (CARB 2021). This is less than the 2020 target of 431 $MMTCO_2e$ (CARB 2021). Table 3.4-1 summarizes the statewide GHG inventory for California.

Table 3.4-1 Statewide GHG Emissions by Economic Sector in 2019

Sector	Percent
Transportation	40
Industrial	21
Electricity generation (in state)	9
Electricity generation (imports)	3
Agriculture	8
Residential	7
Commercial	4
High GWP	5
Waste	2

Notes: GWP = global warming potential

Source: CARB 2021

As shown in Table 3.4-1, transportation, industry, and electricity generation are the largest GHG emission sectors. CO_2 is primarily a product of fuel combustion. Methane (CH_4), a highly potent GHG, primarily results from the breakdown of organic materials under anaerobic conditions and is largely associated with agricultural practices and landfills. Nitrous oxide (N_2O) is also largely attributable to fuel combustion and agricultural practices, namely fertilizer application. CO_2 sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through sequestration and dissolution (CO_2 dissolving into the water), respectively, two of the most common processes for removing CO_2 from the atmosphere.

A GHG inventory for the County of Sacramento was completed for inventory year 2005, which is summarized in Table 3.4-2. A more recent inventory is anticipated with the adoption of the next updated CAP.

Table 3.4-2 Unincorporated Sacramento County Greenhouse Gas Emissions Inventory for 2005 ($MTCO_2e$)

Emissions Sector	2005
On-Road Transportation	5,259,944
Residential Energy Use	2,439,527
Commercial and Industrial Energy Use	2,231,168
Waste	743,232
Off-Road Transportation	584,090
High GWP Gases	502,730
Agriculture	203,723
Sacramento International Airport	200,404
Wastewater Treatment	172,187

Emissions Sector	2005
Industrial-Specific	41,369
Water-Related	25,834
Total	12,404,208

Notes: $MTCO_2e$ = metric tons of carbon dioxide equivalent.

Source: County of Sacramento 2011:21

EFFECTS OF CLIMATE CHANGE ON THE ENVIRONMENT

According to the IPCC, which was established in 1988 by the World Meteorological Organization and the United Nations Environment Programme, global average temperature will increase by 3.7 to 3.8 degrees Celsius (°C) (6.7 to 8.6 degrees Fahrenheit [°F]) by the end of the century unless additional efforts to reduce GHG emissions are made (IPCC 2014:10). According to the California Energy Commission (CEC), temperatures in California will warm by approximately 2.7°F above 2000 averages by 2050 and by 4.1°F to 8.6°F by 2100, depending on emission levels (CEC 2012:2).

Other environmental resources could be indirectly affected by the accumulation of GHG emissions and the resulting rise in global average temperature. In recent years, California has been marked by extreme weather and its effects. According to CNRA's *Safeguarding California Plan: 2018 Update*, California experienced the driest 4-year statewide precipitation on record from 2012 through 2015; the warmest years on average in 2014, 2015, and 2016; and the smallest and second smallest Sierra snowpack on record in 2015 and 2014 (CNRA 2018:55). In contrast, the northern Sierra Nevada experienced its wettest year on record during the 2016-2017 water year (CNRA 2018:64). The changes in precipitation exacerbate wildfires throughout California, increasing their frequency, size, and devastation. As temperatures increase, the amount of precipitation falling as rain rather than snow also increases, which could lead to increased flooding because water that would normally be held in the snowpack of the Sierra Nevada and Cascade Range until spring would flow into the Central Valley during winter rainstorm events. This scenario would place more pressure on California's levee/flood control system (CNRA 2018:190–192). Furthermore, in the extreme scenario involving the rapid loss of the Antarctic ice sheet, the sea level along California's coastline could rise up to 10 feet by 2100, which is approximately 30–40 times faster than the sea-level rise experienced over the last century (CNRA 2017:102). Changes in temperature, precipitation patterns, extreme weather events, wildfires, and sea-level rise have the potential to threaten transportation and energy infrastructure and crop production (CNRA 2018:64, 116–117, 127).

Cal-Adapt is a climate change scenario planning tool developed by CEC that downscales global climate model data to local and regional resolution under two emissions scenarios. The Representative Concentration Pathway (RCP) 8.5 scenario represents a business-as-usual future emissions scenario, and the RCP 4.5 scenario represents a future with reduced GHG emissions. According to Cal-Adapt, annual average temperatures in the project area are projected to rise by 9.3°F to 12.7°F by 2099, with the low and high ends of the range reflecting the lower and higher emissions increase scenarios (CEC 2021).

Sacramento County experienced an annual average high temperature of 74.4°F between 1950 and 2005. Under the RCP 4.5 scenario, the county's annual average high temperature is projected to increase by 2.8°F to 77.2°F by 2050 and increase an additional 7.2°F to 84.4°F by 2099 (CEC 2021). Under the RCP 8.5 scenario, the county's annual average high temperature is projected to increase by 3.1°F to 77.5°F by 2050 and increase an additional 2.3°F to 79.8°F by 2099 (CEC 2021).

Sacramento County experienced an average precipitation of 19.3 inches per year between 1950 and 2005. Under the RCP 4.5 scenario, the county is projected to experience an increase of 2.4 inches to 21.7 inches per year by 2050 and decrease to 21.3 inches per year by 2099 (CEC 2021). Under the RCP 8.5 scenario, the county is projected to experience an increase of 1.4 inches to 20.7 inches per year by 2050 and increase to 21.7 inches per year by 2099 (CEC 2021).

3.4.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

For the purposes of this analysis, GHG emissions are measured as $MTCO_2e$. The atmospheric impact of a GHG is based on the global warming potential (GWP) of that gas. GWP is a measure of the heat trapping ability of one unit of a gas over a certain timeframe relative to one unit of CO_2. The GWP of CO_2 is 1.0. Consistent with the methodology used by the CARB in estimating statewide GHG emissions, this analysis uses GWP values from the Fourth Assessment Report (AR4) by IPCC. For the 100-year time horizon, AR4 assumes the GWP of CH_4 is 25 and the GWP of N_2O is 298 (IPCC 2007).

GHG emissions were assessed in accordance with SMAQMD-recommended methodologies. The project's emissions are compared to SMAQMD-adopted thresholds. Construction and operational GHG emissions were calculated using a combination of California Emissions Estimator Model (CalEEMod) version 2020.4.0 computer program, as recommended by SMAQMD, and off-model calculations based on project-specific information. CalEEMod was based on project-specific information (e.g., land use type, building square footage) where available; reasonable assumptions based on typical construction activities; and default values in CalEEMod that are based on the project's location and land use type.

Construction

As stated in Chapter 2, "Project Description," construction of the project is anticipated to begin in summer of 2024 and last between 18 and 24 months. Project construction would result in temporary emissions of GHGs associated with the use of off-road equipment, haul trucks delivering equipment and materials, and worker commute trips. GHG emissions would primarily be associated with construction equipment and on-road mobile exhaust. Construction activities associated with the project would likely require the use of equipment such as excavators, graders, dozers, backhoes, trenchers, forklifts, compactors, graders, welding machines, haul trucks, cement trucks, and paving equipment.

Emissions associated with construction were estimated using CalEEMod 2020.4.0. Modeling was based on project-specific information, where available; assumptions based on typical construction activities; and default values in CalEEMod that are based on the project's location and land use type. Worst-case annual construction emissions were estimated based on anticipated construction activities that would occur within a given year. For detailed assumptions and modeling inputs, refer to Appendix B.

Operations

To evaluate the emissions resulting from the operation of the project, this analysis compares the change in estimated emissions between existing and project conditions. This is discussed in greater detail below and full calculations are provided in Appendix B.

Due to the biogenic source of digester gas, the CO_2 emissions emitted from the combustion of digester gas were excluded from this analysis because they are part of the natural carbon cycle rather than the geological or anthropogenic cycle. The exclusion of biogenic CO_2 emissions is also recommended by the California Air Pollution Control Offers Association (CAPCOA 2021). Although SMAQMD CEQA guidelines do not specifically exclude biogenic GHG emissions, the guidelines were developed in consideration of CARB's GHG approach, which focuses on anthropogenic emissions sources (SMAQMD 2020, CARB 2017a). Additionally, biogenic emissions are excluded from the Cap-and-Trade market.

This analysis only evaluates existing emissions sources that would change with the project (i.e., boilers, flares, electricity use). Sources that would remain unchanged between existing and project conditions, such as wastewater treatment process emissions, were not evaluated. Annual GHG emissions from existing boilers were calculated using the digester gas and natural gas fuel use records for 2021, available from boiler permit reports submitted to SMAQMD, and GHG emission factors available from The Climate Registry (Ross, pers. comm. 2022, The Climate Registry 2021). Non-biogenic GHG emissions (i.e., CH_4 and N_2O) from flares were calculated from the amount of digester gas sent to flares, which is assumed to be 18 percent of total digester gas production (Ross, pers. comm.,

2022). The annual flared digester gas was multiplied by the non-biogenic GHG emission factors shown in the flare permits, which are based on factors from EPA's GHG Mandatory Reporting Rule that uses GWP factors from AR4 (78 FR 71908, November 29, 2013) (EPA 2019). Emissions from existing electricity usage were based on 2021 utility billing data available for the existing facility and SMUD-specific GHG emission factors, accounting for Regional San's current level of commitment to SMUD's SolarShare program (Robles, pers. comm. 2022). Calculations of total existing on-site combustion of digester and natural gas and related emissions are provided in Appendix B.

Operational emissions from the new biogeneration facility include GHG emission from the combustion of digester gas and natural gas to generate electricity and from additional worker commute trips to and from the project area generated by 10 additional employees. Annual GHG emissions from the proposed project were estimated using emission rates for the combustion of the combined heat and power (CHP) engines and additional auxiliary emissions (e.g., new worker commute activity and area source emissions) calculated from CalEEMod modeling. For the purposes of this analysis and to provide the most conservative assessment, the emissions rates represent five 3-MW Jenbacher JMS 620 engines running at full capacity and combusting 100 percent of the average annual digester gas generated by the facility plus, to meet the specification of the engine, an additional 10 percent of fuel used by the engines would come from natural gas. Estimates reflect full production capacity anticipated in 2045. A separate analysis for the first year of operation in 2025 was interpolated from this estimate and existing conditions. Additionally, though no emissions from flares or standby boilers are assumed in this scenario, this scenario represents the worst-case emissions for the project. As such, the emissions estimates presented in this analysis are conservatively high.

Although the biogeneration facility would provide electricity on-site, some additional electricity would be needed from the utility grid to meet the facility's energy demand. However, given that the build out year of the project is 2045 and electricity generated by SMUD after 2030 is not expected to result in emissions per the 2030 Zero Carbon Plan, no emissions are associated with electricity that would be sourced from the grid after 2030. The emissions associated with grid-based electricity demand in the 2025 was based on the interpolated emission factors between published factors for 2020 and a zero factor in 2030 (CEC 2022).

Under the project, Regional San would no longer use steam-generated heat currently provided by the adjacent Carson Cogen Plant to facilitate on-site digesters. However, Regional San does not have jurisdiction over operations at Carson Cogen Plant and SMUD may or may not change their operations at Carson Cogen Plant as a result of the proposed project. Additionally, any existing combustion of digester gas delivered to either Carson Cogen Plant or the Cosumnes Power Plant occurs outside of Regional San's jurisdiction. Thus, any emissions changes at SMUD's facilities that currently use the SRWTP's digester gas are excluded from this analysis.

The emissions from additional worker commute associated with the new facility were estimating using CalEEMod 2020.4.0. Modeling assumed 10 additional workers and used model default assumptions for the commute trip rates and lengths. No landscaping activity or related emissions are assumed to occur under the project.

THRESHOLDS OF SIGNIFICANCE

The issue of global climate change is inherently a cumulative issue because the GHG emissions of individual projects cannot be shown to have any material effect on global climate. Thus, the project's impact on climate change is addressed only as a cumulative impact.

State CEQA Guidelines Section 15064 and relevant checklist questions contained in Appendix G recommend that a lead agency consider a project's consistency with relevant, adopted plans and discuss any inconsistencies with applicable regional plans, including plans to reduce GHG emissions. Under Appendix G of the State CEQA Guidelines, implementing the project would result in a cumulatively considerable contribution to climate change if it would:

- generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, or
- conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

To evaluate the project in light of the 2030 statewide GHG reduction target codified by SB 32 (i.e., 40 percent below 1990 levels), and the 2050 long-term statewide goal identified in EO B-30-15 (i.e., 80 percent below 1990 levels), this analysis relies on the most recently adopted SMAQMD CEQA Guide and GHG thresholds (2020). Based on SMAQMD's guidance, which includes a tiered approach to determining project significance, the project result in a cumulatively considerable contribution to climate change if it would:

- Result in construction emissions that exceed 1,100 MT CO_2e/year, as established in SMAQMD's CEQA Guide and GHG thresholds (2020).
- Exceed 10,000 direct MT CO_2e/year for stationary source-type projects (SMAQMD 2020).

ISSUES NOT DISCUSSED FURTHER

All issues pertaining to GHGs and climate change are discussed below.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.4-1: Generate GHG Emissions, Either Directly or Indirectly, that May Have a Significant Impact on the Environment

The project would result in GHG emissions from construction activities and operational activities including vehicle trips and operation of the CHP engines. By generating electricity on-site with biogas, the project would displace existing indirect GHG emission from electricity generation provided by SMUD. This displacement outweighs the smaller increases in operational emissions from additional worker commute trips and increased natural gas usage. The project would result in 65 percent reduction in GHG emissions from existing conditions. Additionally, construction emissions would be below SMAQMD thresholds and would also be offset by the net reduction in GHG emissions during operations. Therefore, the project's GHGs would not be cumulatively considerable contribution to climate change. There would be **no adverse impact;** a net reduction in GHG would be beneficial.

GHG emissions associated with the project would be generated during construction and operation, which are discussed separately below to address SMAQMD's thresholds for each. However, GHG emissions are inherently cumulative in nature and the overall project related GHGs are considered in determining the GHG impact conclusion.

Construction

Project-related construction activities would result in the generation of GHG emissions from the use of heavy-duty off-road construction equipment, delivery trucks associated with materials transport, and vehicle use during worker commute during both phases of construction. Table 3.4-3 provides a summary of the total construction-related emissions that would occur.

Table 3.4-3 Construction-Generated Greenhouse Gas Emissions

Construction Year	Total $MTCO_2e$
2024	98
2025	222
SMAQMD Threshold of Significance ($MTCO_2e$/year)	1,100
Total Project Construction Emissions	319

Notes: Totals may not add due to rounding.

$MTCO_2e$ = metric tons of carbon dioxide equivalent; GHG = greenhouse gas; SMAQMD = Sacramento Metropolitan Air Quality Management District

Source: Modeled conducted by Ascent Environmental in 2022

As shown in Table 3.4-3 the project's construction emissions for years 2024 and 2025 would not result in an exceedance of the SMAQMD threshold.

Operations

By generating electricity on-site, the project would displace GHG emissions from existing electricity demand from SMUD for operation of the SRWTP. This displacement outweighs the smaller additional emissions that would be generated from new worker commute trips, additional natural gas use required to operate the CHP engines, and non-biogenic GHG emissions from digester gas combustion. In its first year (2025), the biogeneration facility would only be able to offset 44 percent of the electricity needs for the SRWTP. Under full digester gas production capacity, which is not anticipated until 2045, the project would generate enough electricity to meet approximately 70 percent of the anticipated demand at the SRWTP. The remaining 30 percent of electricity needed to operate the SRWTP would be purchased from SMUD from the grid. However, after 2030, no GHG emissions would be associated with the 30 percent of electricity purchased from the grid because of SMUD's 2030 Zero Carbon Plan. Therefore, when operating, the project would always result in a net reduction in GHG emissions compared to existing conditions.

Table 3.4-4 summarizes the annual operational GHG emissions in 2025 and at full capacity in 2045. Energy calculations are shown in Appendix B.

Table 3.4-4 Net Operational-Generated Greenhouse Gas Emissions in 2025and 2045 ($MTCO_2e$ per Year)

Source		
Existing Emissions[1]	**2021**	**2021**
Grid-Based Electricity Demand	11,224	11,224
Boilers/Flares	764	764
Total	**11,988**	**11,988**
Project Emissions	**2025**	**2045**
Grid-Based Electricity Demand[2]	4,190	0
CHP Engines[3]	2,835	4,655
Mobile	16	16
Total	**7,041**	**4,671**
Net Emissions	**2025**	**2045**
Grid-Based Electricity Demand[4]	-7,034	-11,224
Stationary Sources (CHP Engines/Boilers/Flares)[5]	2,072	3,891
Mobile[6]	16	16
Total	**-4,947**	**-7,317**
SMAQMD Thresholds of Significance for Stationary Sources	**10,000**	**10,000**

Notes: Totals may not add due to rounding.

$MTCO_2e$ = metric tons of carbon dioxide equivalent; GHG = greenhouse gas; SMAQMD = Sacramento Metropolitan Air Quality Management District; CHP=combined heat and power

[1] Based on fuel combustion records in 2021.

[2] The project would still require electricity from the grid, but at a lower rate than existing conditions.

[3] Based on engines running at full capacity (100 percent annual average digester gas + natural gas). 10 percent natural gas content is assumed. No flare or boiler operation.

[4] Project emissions from grid-based electricity demand minus existing/no project emissions from grid-based electricity demand.

[5] Project emissions from CHP Engines minus existing/no project emissions from boilers/flares

[6] Project emission from mobile sources only.

Source: Modeled by Ascent Environmental in 2022

As shown in Table 3.4-4, operation of the project would result in a net reduction of between 4,947 and 7,317 $MTCO_2e$ per year from the operation of the CHP engines at the biogeneration facility and vehicle trips and the displacement of electricity use from the grid. In addition, total project-related construction emissions of 319 $MTCO_2e$ would also be completely offset by the project's net reductions in operational GHG emissions. Therefore, the project's GHGs would not be cumulatively considerable contribution to climate change. There would be **no adverse impact;** the net reduction in GHG emissions would be beneficial.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.4-2: Conflict with an Applicable Plan, Policy, or Regulation Adopted for the Purpose of Reducing the Emissions of GHGs

The project would result in a net reduction in GHG emissions compared to existing conditions. The project is also consistent with CARB's statewide strategy to use renewable biofuels in place of fossil fuels as it would use digester gas to generate electricity on-site. Thus, the project would be consistent with the goals of the 2022 Scoping Plan Update. Therefore, there would be **no impact**.

While those cities that are served by Regional San and have qualified climate action plans recognize the GHG emissions associated with the treatment of wastewater generated within their jurisdictions—treatment that is provided by Regional San—their climate action plans do not include measures pertaining to how Regional San operates. Therefore, CARB's 2022 Scoping Plan Update and CARB's Short-Lived Climate Pollutant Reduction Strategy are the GHG reduction plans most applicable to activities at Regional San, including the proposed project. Both the 2022 Scoping Plan Update and the Short-Lived Climate Pollutant Reduction Strategy call for the use of renewable biofuels, including digester gas generated at wastewater treatment plants, in place of fossil fuels (CARB 2022a). The Short-Lived Climate Pollutant Reduction Strategy also calls for the use of anaerobic digestion facilities at wastewater treatment plants to produce methane and the use of this methane to generate electricity (CARB 2022a). The project would use digester gas in place of natural gas to generate electricity, and this digester gas is generated by the anaerobic digestion of biosolids and other feedstock. Thus, the project would be consistent with both the 2022 Scoping Plan Update and the Short-Lived Climate Pollutant Reduction Strategy. Therefore, there would be **no impact**.

Mitigation Measures

No mitigation is required for this impact.

4 CUMULATIVE IMPACTS

4.1 INTRODUCTION TO THE CUMULATIVE ANALYSIS

This Draft EIR provides an analysis of cumulative impacts of the proposed Regional San BioGeneration Facility Project taken together with other past, present, and probable future projects producing related impacts, as required by Section 15130 of the State CEQA Guidelines. The goal of such an exercise is twofold: first, to determine whether the overall long-term impacts of all such projects would be cumulatively significant; and second, to determine whether the incremental contribution to any such cumulatively significant impacts by the project would be "cumulatively considerable" (and thus significant). (See State CEQA Guidelines Sections 15130[a]–[b], Section 15355[b], Section 15064[h], and Section 15065[c]; and Communities for a Better Environment v. California Resources Agency [2002] 103 Cal. App. 4th 98, 120.) In other words, the required analysis intends first to create a broad context in which to assess cumulative impacts, viewed on a geographic scale beyond the project site itself, and then to determine whether the project's incremental contribution to any significant cumulative impacts from all projects is itself significant (i.e., "cumulatively considerable").

Cumulative impacts are defined in State CEQA Guidelines Section 15355 as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." A cumulative impact occurs from "the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time" (State CEQA Guidelines Section 15355[b]).

Consistent with State CEQA Guidelines Section 15130, the discussion of cumulative impacts in this Draft EIR focuses on significant and potentially significant cumulative impacts. Section 15130(b) of the State CEQA Guidelines provides, in part, the following:

> [t]he discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact.

A proposed project is considered to have a significant cumulative effect if:

- the cumulative effects of development without the project are not significant and the project's additional impact is substantial enough, when added to the cumulative effects, to result in a significant impact; or
- the cumulative effects of development without the project are already significant and the project contributes considerably to the effect.

The term "considerably" is subject to interpretation. The standards used herein to determine if an impact is considerable are that the impact must be noticeable to a reasonable person or must exceed an established threshold of significance (defined throughout the resource sections in Chapter 3 of this Draft EIR).

4.2 CUMULATIVE IMPACT APPROACH

State CEQA Guidelines Section 15130 identifies two basic methods for establishing the cumulative environment in which a project is considered: the use of a list of past, present, and probable future projects or the use of development projections from an adopted general plan, other regional planning document, or a certified EIR for such a planning document. This cumulative analysis uses a combination of the "list" approach and the "plan" approach to identify the cumulative setting. The effects of past and present projects on the environment are reflected by the existing conditions in the project area.

Probable future projects are those in the project vicinity that have the possibility of interacting with the project to generate a cumulative impact and:

- are partially occupied or under construction;
- have received final discretionary approvals;
- have applications accepted as complete by local agencies and are undergoing environmental review; or
- are otherwise considered likely to be developed, based on historic development patterns, including the rate of development, in Sacramento County or City of Elk Grove.

This project uses a combination of the "list" approach and the "projections" approach to identify the cumulative setting. The projections contained in the General Plans for Sacramento County and the City of Elk Grove were used to determine the cumulative setting for the project.

4.3 CUMULATIVE SETTING

4.3.1 Geographic Scope

The geographic area that could be affected by the project and is appropriate for a cumulative impact analysis varies depending on the environmental resource topic, as presented in Table 4-1.

Table 4-1 Geographic Scope of Cumulative Impacts

Resource Topic	Geographic Area
Air Quality	Regional (pollutant emissions that affect the air basins) and immediate project vicinity (pollutant emissions that are highly localized)
Biological Resources	Regional, Sacramento County
Cultural and Tribal Cultural Resources	Local (limited to project area), with regional implications
Greenhouse Gas Emissions and Climate Change	Global

Source: Compiled by Ascent Environmental in 2023

4.3.2 Regional Planning Environment

SACRAMENTO COUNTY GENERAL PLAN

The current *Sacramento County General Plan of 2005–2030* (Sacramento County General Plan) was adopted in 2011 (Sacramento County 2011). The County General Plan is a comprehensive, long-range framework that address important community issues such as housing and transportation needs, economic development, public safety, natural resource protection, sewer and water infrastructure, roadways, schools, and parks. The planning horizon for the County General Plan is 2005 through 2030 and beyond. The General Plan focuses on economic growth and environmental sustainability (Sacramento County 2011).

SOUTH SACRAMENTO HABITAT CONSERVATION PLAN

The project area is located within the South Sacramento Habitat Conservation Plan (SSHCP) area and Regional San is a Plan Partner that is eligible to use the SSHCP as a "Participating Special Entity."

The SSHCP is intended to provide a streamlined process for incidental take authorization under both the ESA and CESA, permitting under Section 404 of the CWA, and water quality certification under Section 401 of the CWA. The SSHCP provides strategies to conserve habitat for special-status plant and wildlife species that are covered under the plan.

Once implemented, it will serve as a multi-species, multi-habitat conservation plan addressing the biological impacts of future urban development within the Urban Services Boundary (USB) in the southern portion of the county.

The emphasis of the SSHCP is to secure large, interconnected blocks of habitat that focus on protecting intact subwatersheds, while minimizing edge effects and maximizing heterogeneity. Habitat losses within the USB will be offset primarily through the establishment of large preserves outside the USB, but core and satellite preserves may be established within the USB. Land developers that convert habitat within the USB will pay a defined per-acre fee to mitigate impacts and these fees will be used to protect, restore, maintain, and monitor habitat, or will dedicate land to the preserve system.

4.3.3 Related Projects

Table 4-2 provides a list of past, present, and probable future projects that would affect the local area and that meet the requirements stated above. The listed projects are in the project vicinity and have the possibility of interacting with the proposed Regional San BioGeneration Facility Project to generate related impacts (Figure 4-1; the map numbering corresponds to the numbers in Table 4-2). This list of projects was utilized in the development and analysis of the cumulative settings and impacts for each resource topic. Past and current projects in the project vicinity were also considered as part of the cumulative setting as they contribute to the existing conditions upon which the proposed Regional San BioGeneration Facility Project and each probable future project's environmental effects also are described; these projects are included in Table 4-2.

4.4 CUMULATIVE IMPACTS ANALYSIS

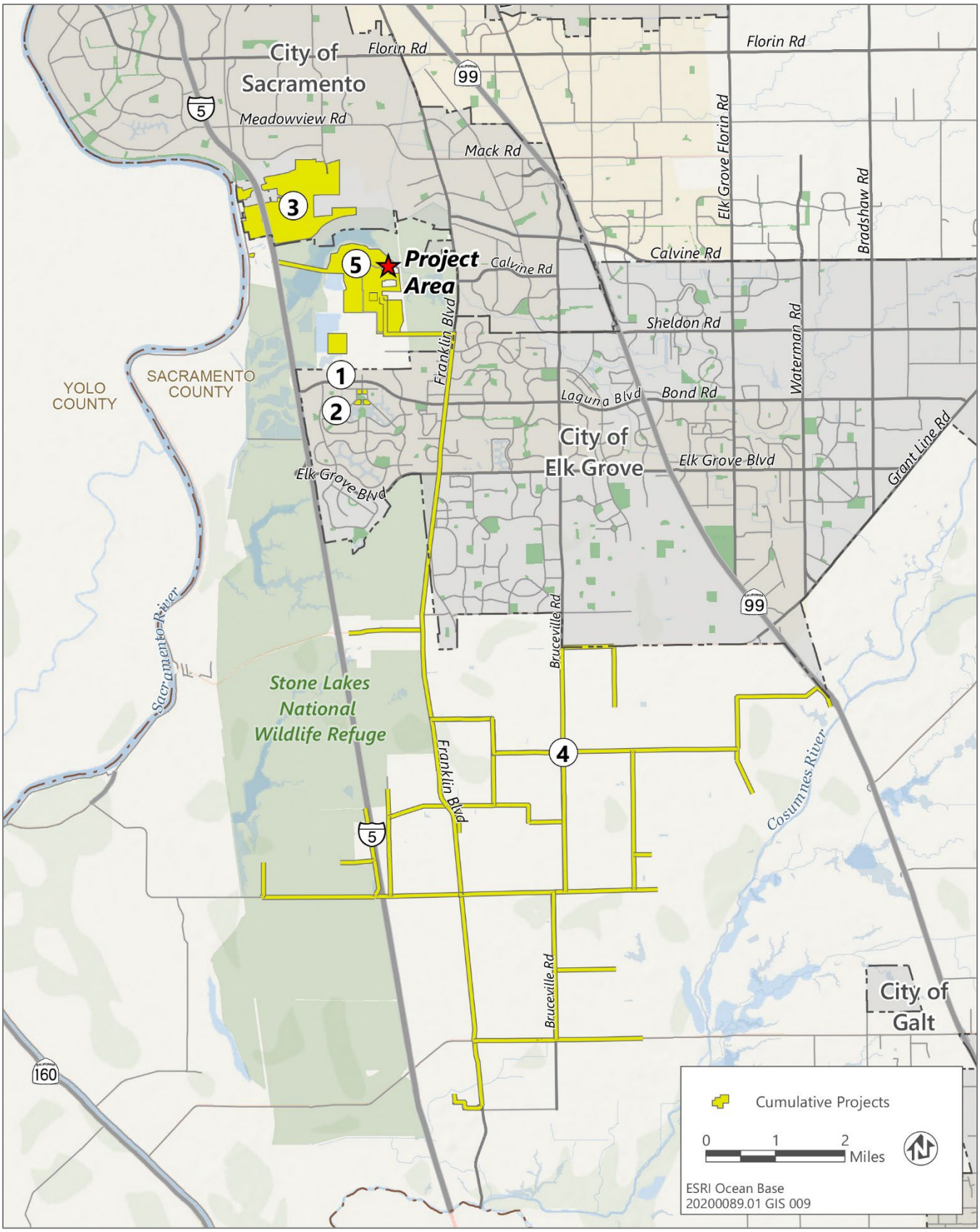
The following sections contain a discussion of the cumulative effects anticipated from implementation of the proposed Regional San BioGeneration Facility Project, together with related projects and planned development in Sacramento County and the City of Elk Grove, for each of the environmental issue areas evaluated in this Draft EIR. The analysis conforms with Section 15130(b) of the State CEQA Guidelines, which specifies that the "discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact."

When considered in relation to other reasonably foreseeable projects, cumulative impacts to some resources would be significant and more severe than those caused by the proposed project alone.

For purposes of this EIR, the project would result in a significant cumulative impact if:

- the cumulative effects of related projects (past, current, and probable future projects) are not significant and the incremental impact of implementing the proposed Regional San BioGeneration Facility Project is substantial enough, when added to the cumulative effects of related projects, to result in a new cumulatively significant impact; or
- the cumulative effects of related projects (past, current, and probable future projects) are already significant, and implementation of the proposed Regional San BioGeneration Facility Project makes a considerable contribution to the effect. The standards used herein to determine a considerable contribution are that either the impact must be substantial or must exceed an established threshold of significance.

Consistent with Regional San's commitments, this cumulative analysis assumes that all mitigation measures identified in Chapter 3 to mitigate project impacts are adopted and implemented, and all elements of the project design that would avoid or minimize environmental effects are implemented. The analysis herein analyzes whether, after implementation of project-specific mitigation and project design elements that avoid or minimize environmental effects, the residual impacts of the project would cause a cumulatively significant impact or would contribute considerably to existing/anticipated (without the project) cumulatively significant effects. Where the project would so contribute, additional mitigation is recommended where feasible.



Source: Data compiled by Ascent in 2022

Figure 4-1 Cumulative Projects

Table 4-2 List of Reasonably Foreseeable Projects Considered in the Cumulative Analysis

Number/Map Designation	Project Name & Location	Project Description	Status
1	Laguna Main Street Apartments (South of Vaux Avenue, between Nolan Street and Peets Street, Elk Grove)	The Laguna Main Street Apartments Project consists of a General Plan Amendment from Community Commercial to Residential Mixed Use (RMU), a Rezone from Limited Commercial (LC) to RMU, a Major Design Review for a 148-unit apartment complex, and a Special Parking Permit for a reduction in the number of required parking spaces.	Public Draft IS/MND circulated April 2021.
2	Toscano Apartments Project (South of Mumford Court, north of Laguna Court, and between West Lake Drive and East Lake Drive, Elk Grove)	The Toscano Apartments Project consists of a Major Design Review for a 206-unit apartment complex and a Minor Deviation for a reduction in the number of required parking spaces (Project). The Project proposal includes four, three story multi-family residential apartment buildings and two clubhouses as well as a swimming pool, community garden, dog park, bocce ball court, outdoor eating and meeting areas, covered parking and tuck-under garages, landscape areas, and associated improvements.	Project approved on March 18, 2021.
3	Delta Shores Project (East and west of I-5 at the southwest city limits of Sacramento)	The Delta Shores Project is a master planned community on approximately 782 acres in South Sacramento. The project includes a mix of commercial (up to 1.3 million square feet) and residential uses (up to 5,222 residential units ranging from single-family detached to high density multi-family housing). Additionally, the project would include open space, recreation, two school sites, pedestrian/bicycle paths, and a private community center.	First set of entitlements approved in 2009; subsequent entitlements approved in 2015. Major retail center has been completed.
4	Harvest Water (Portions of the City of Elk Grove, unincorporated Sacramento County, and portions of the Stone Lakes National Wildlife Refuge)	Harvest Water involves delivery of disinfected tertiary-treated water to potential agricultural customers in southern Sacramento County. Regional San plans to deliver up to 50,000 acre-feet per year (AFY) of Title 22 tertiary recycled water (including wintertime habitat application) to approximately 16,000 acres of irrigated lands, 400 acres of managed wetlands within the Stone Lakes National Wildlife Refuge (NWR), and a potential recharge area.	Program EIR certified and project approved in March 2017. Construction expected to begin in 2023.
5	EchoWater Project (SRWTP at 8521 Laguna Station Road, Elk Grove)	The SRWTP treats wastewater and then discharges the treated effluent into the Sacramento River. Discharges from the SRWTP are subject to the National Pollutant Discharge Elimination System permit program. As a result of new permit requirements adopted by the Central Valley Regional Water Quality Control Board and the State Water Resources Control Board in 2010, and amended in 2011, 2012, and 2013, Regional San is required to reduce total nitrogen and ammonia levels in its effluent. Construction and operation of new facilities as part of the SRWTP would result in improved treated effluent water quality. Up to approximately 480 acres of the SRWTP, primarily within the 900-acre core facility area, would be disturbed (Regional San 2014).	EIR certified and project approved in September 2014. Currently under construction. Construction expected to be complete in 2023.

4.4.1 Air Quality

Construction and operation of the project would result in emissions of criteria air pollutants (e.g., particulate matter with an aerodynamic diameter of 10 microns or less [PM_{10}]) and precursors (e.g., oxides of nitrogen [NO_X] and reactive organic gases [ROG]) in Sacramento County within the jurisdiction of the Sacramento Metropolitan Air Quality Management District (SMAQMD). Sacramento County is currently in nonattainment for Ozone, PM_{10}, and $PM_{2.5}$ with respect to the California Ambient Air Quality Standards (CAAQS) and the National Ambient Air Quality Standards (NAAQS). With respect to CO, SO_2, lead, sulfates, visibility reducing particles, H_2S, and vinyl chloride, the project would be required to meet all SMAQMD requirements established through the stationary source permitting process. For this set of pollutants, the SMAQMD has concentration-based thresholds, instead of mass emission thresholds, because the Sacramento Valley Air Basin has been in attainment for these pollutants for multiple years. These concentration-based thresholds are based on the AAQS. As an air pollution control district, SMAQMD is responsible for issuing permits to reduce air pollution and maintain (or attain) the AAQS (SMAQMD 2020). Through the permitting process, SMAQMD evaluates the potential emissions from all permitted sources and allocates permits and emission limits to each permit such that the regional concentrations do not exceed the AAQS. Because the project's emissions would be required to meet the AAQS through the permitting process, the project would not result in an exceedance of SMAQMD thresholds of significance for these pollutants.

Ozone impacts are the result of the cumulative emissions from numerous sources in the region and transport from outside the region. Ozone is formed in chemical reactions involving NO_X, ROG, and sunlight. All but the largest individual sources emit NO_X and ROG in amounts too small to have a measurable effect on ambient ozone concentrations by themselves. However, when all sources throughout the region are combined, they result in severe ozone problems. Therefore, NO_X, ROG, PM_{10}, and $PM_{2.5}$ emissions from cumulative development are considered to be cumulatively significant.

Air districts in California develop air quality attainment plans designed to reduce emissions of ozone precursors enough to attain the federal ozone standard by the earliest practicable date. Air quality attainment plans include a multitude of air pollution control strategies. When developing air quality attainment plans, air districts account for the emissions from all present and future development in the region by relying on city and county general plans. Because the project would be consistent with the land use designation in the Sacramento County General Plan, emissions associated with development of the project are accounted for in SMAQMD's air quality attainment plan.

Project-related construction and emissions would not exceed the applicable mass emissions thresholds for criteria air pollutants established by SMAQMD. This includes Regional San's purchase of ROG and NO_X offsets that are required for the Condition of Approval and Permit to Operate. SMAQMD developed its thresholds of significance in consideration of cumulative impacts in the SVAB and expects that projects within these thresholds would not result in a cumulatively considerable contribution to a significant cumulative impact (SMAQMD 2020). Therefore, because estimated construction-related and operational-related emissions would not exceed applicable thresholds, the project would not result in a cumulatively considerable impact to air quality.

As discussed under Impact 3.1-4, the project would not generate significant health risks associated with toxic air contaminants, because it would not expose any single receptor to a cancer risk, or to a noncarcinogenic hazards. Therefore, the increases in health risk attributable to the project would not be cumulatively considerable.

The project would not generate additional odors, as discussed under Impact 3.1-5. Because of the localized character of odor-related impacts, as well as the site-specific odor control technology that would be in place and enhanced by the project, the project would not have a cumulatively considerable contribution to odor complaints such that a significant cumulative odor-related impact would occur.

Therefore, the project would not result in a cumulatively considerable incremental contribution to a cumulatively significant impact on air quality; the cumulative impact would be **less than significant.**

4.4.2 Biological Resources

The context for cumulative impacts on biological resources is Sacramento County, the range of affected special-status species and sensitive habitats, as well as adjacent migration and movement corridors (e.g., natural habitat areas surrounding the Sacramento County, the Pacific flyway for migratory birds) that are connected to Sacramento County.

Past development in Sacramento County, ranging from conversion of land to agricultural production more than one hundred years ago to recent expansion of urban development, has resulted in a substantial loss of native habitat to other uses. This land conversion has benefited a few species, such as those adapted to agricultural uses, but the overall effect on native plants, animals, and habitat has been adverse. Although past, present, and future projects in the project vicinity would be required to mitigate significant impacts on biological resources, in compliance with CEQA, the federal Endangered Species Act (ESA), California Endangered Species Act (CESA), and other federal, state, and local statutes, many types of habitats and species are provided no protection. Therefore, it can be expected that the net loss of native habitat for plants and wildlife, agricultural lands, and open space areas that support important biological resources in Sacramento County will continue.

Significant adverse impacts on sensitive habitats and special-status species would be associated with the future urban growth expected to occur in Sacramento County as a result of buildout of planned communities (e.g., East Antelope, Vineyard Springs, Florin Vineyard Gap), development of New Growth Areas (e.g., Cordova Hills, Jackson Township, West Jackson Highway), and other development (Sacramento County 2011). Additionally, some of the specific projects listed in Table 4-2 would also result in impacts to sensitive and common biological resources. The EchoWater Project has the potential to result in the loss of special-status plants and conversion of wetlands, which could result in significant impacts to vernal pool fairy shrimp, valley elderberry longhorn beetle, Swainson's hawk and other nesting raptors, loggerhead shrike and other special-status birds, and giant garter snake and western pond turtle. Additionally, the project would result in the removal of trees, and could result in the potential loss or degradation of oak woodland, native perennial grassland, and riparian woodland. Mitigation—including habitat avoidance, compensation, preservation, and/or creation—has been recommended to reduce all of these impacts to a less-than-significant level. The EIR for the Sacramento County General Plan update (General Plan EIR) indicates that even if the General Plan policies and programs to preserve conservation and open space elements and project mitigation measures were implemented, the impacts to wetland and riparian habitats, special-status species, and other sensitive resources from future conversion of open space would be significant and unavoidable (Sacramento County 2011).

Although the General Plan EIR came to these conclusions, significant and unavoidable impacts to species that are protected under ESA or CESA would not be permitted under law. Both laws require that any take of species is minimized and fully mitigated. The development and implementation of the South Sacramento Habitat Conservation Plan (SSHCP) aims to ensure that cumulative development within the County does not substantially affect special-status species. The SSHCP was adopted in 2018 and permits were issued starting in 2019. Regional San is a participating partner of the SSHCP.

As analyzed and described in Section 3.2, "Biological Resources," implementation of the project could result in significant impacts to special-status species (e.g., Swainson's hawk, burrowing owl, tricolored blackbird, and common native nesting birds). Mitigation measures include provisions to reduce, and/or avoid impacts in accordance with the requirements of ESA and CESA, and consistent with the Sacramento County General Plan and SSHCP goals and policies for resource protection. Through implementation of Mitigation Measures 3.2-1a through 3.2-1c, potential project-related impacts would be avoided or reduced to such an extent that they are not expected to result in a considerable contribution to a cumulative impact. Additionally, project impacts would be limited to marginal foraging habitat within the project area, which is on land designated as Urban Development Area in the SSHCP, and project implementation would not result in permanent habitat loss within surrounding open space (e.g., the Bufferlands). Therefore, the project would not result in a cumulatively considerable incremental contribution to a cumulatively significant biological resource impact; the cumulative impact would be **less than significant.**

4.4.3 Cultural and Tribal Cultural Resources

The geographic scope for the analysis of cumulative impacts to archaeological resources, tribal cultural resources, and human remains is the historic lands of the Plains Miwok. The Plains Miwok inhabited the Central Valley along the Sacramento, Cosumnes, and Mokelumne Rivers, and built their homes on high ground, with principal villages concentrated along major drainages.

Because all significant cultural resources are unique and nonrenewable members of finite classes, meaning there are a limited number of significant cultural resources, all adverse effects erode a dwindling resource base. The loss of any one archaeological site could affect the scientific value of others in a region because these resources are best understood in the context of the entirety of the cultural system of which they are a part. The cultural system is represented archaeologically by the total inventory of all sites and other cultural remains in the region. As a result, a meaningful approach to preserving and managing cultural resources must focus on the likely distribution of cultural resources, rather than on a single project or parcel boundary.

The historic lands of the Plains Miwok people have been affected by development since 1808 when Gabriel Moraga led an expedition from Mission San José to the northern Sacramento Valley. In 1841 John Sutter arrived at the confluence of the American and Sacramento rivers, established a settlement, and received the first land grant in the region for his New Helvetia Rancho. The area became a trading and economic center after the 1849 gold rush, due to its proximity to mining areas and its accessibility to maritime traffic. Commerce along the Sacramento River encouraged continued population growth, with many of the miners and farmers settling along the natural levees of the Sacramento River. The community of Elk Grove was originally established as a stage stop on the Monterey Trail, connecting the Stockton and Sacramento areas, providing services for travelers and the surrounding farming community. These activities have resulted in an existing significant adverse effect on archaeological resources, tribal cultural resources, and human remains. Cumulative development, including projects described in Table 4-2, continues to contribute to the disturbance of cultural resources. Construction of the EchoWater Project adjacent to the project area could potentially disturb subsurface paleontological, archaeological, historical, or Native American resources and/or human remains that were not observable on the surface. Implementation of mitigation would reduce impacts to cultural resources to a less-than-significant level.

No known unique archaeological resources, tribal cultural resources, or human remains are located within the boundaries of the proposed project area; nonetheless, project-related earth-disturbing activities could damage undiscovered archaeological resources, tribal cultural resources, or human remains. The proposed project, in combination with other development in the region, could contribute to ongoing substantial adverse changes in the significance of unique archaeological resources resulting from urban development and conversion of natural lands. Cumulative development could result in potentially significant archaeological resource, tribal cultural resource, or human remain impacts.

Implementation of EC-1 in Chapter 2, "Project Description," and Mitigation Measure 3.3-1 would ensure that the proposed project's contribution to cumulatively significant archeological resource impacts would not be considerable by requiring construction work to cease in the event of an accidental find and the appropriate treatment of discovered resources, in accordance with pertinent laws and regulations. With implementation of this mitigation measure, the proposed project's contribution to these impacts would be substantially lessened. Similarly, EC-1 and Mitigation Measure 3.3-2 would ensure that the proposed project's contribution to cumulatively significant tribal cultural resource impacts would not be considerable by requiring preservation options and proper care of significant artifacts if they are recovered. Further, cumulative development would be required to implement similar mitigation to avoid/reduce impacts to archaeological resources and tribal cultural resources. Compliance with California Health and Safety Code Sections 7050.5 and PRC Section 5097 would ensure that treatment and disposition of the remains occurs in a manner consistent with state guidelines and California Native American Heritage Commission guidance. Therefore, the proposed project would not have a considerable contribution to any significant cumulative impact related to archaeological resources, tribal cultural resources, or human remains. This impact would be **less than significant.**

4.4.4 Greenhouse Gas Emissions and Climate Change

As discussed in Section 3.4, "Greenhouse Gas Emissions and Climate Change," greenhouse gas (GHG) emissions generated by project construction and operation is inherently a cumulative impact discussion. GHG emissions from one project cannot, on their own, result in changes in climatic conditions; therefore, the emissions from one project must be considered in the context of their contribution to cumulative global emissions, which is a significant cumulative impact. The project is within the jurisdiction of SMAQMD, and the most recently adopted SMAQMD CEQA Guide and GHG thresholds (2020) of significance are used. The project would result in 65 percent reduction in GHG emissions from existing conditions. Additionally, construction emissions would be below SMAQMD thresholds and would also be offset by the net reduction in GHG emissions during operations. Therefore, the project would not make a considerable contribution to a cumulative impact related to GHGs and climate change. This impact would be **less than significant**.

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5 ALTERNATIVES

5.1 INTRODUCTION

The California Code of Regulations (CCR) Section 15126.6(a) (State CEQA Guidelines) requires EIRs to describe "… a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather, it must consider a range of potentially feasible alternatives that will avoid or substantially lessen the significant adverse impacts of a project and foster informed decision making and public participation. An EIR is not required to consider alternatives that are infeasible. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason." This section of the State CEQA Guidelines also provides guidance regarding what the alternatives analysis should consider. Subsection (b) further states the purpose of the alternatives analysis is as follows:

> Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code [PRC] Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.

The State CEQA Guidelines require that the EIR include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative must be discussed, but in less detail than the significant effects of the project as proposed (CCR Section 15126.6[d]).

The State CEQA Guidelines further require that the "no project" alternative be considered (CCR Section 15126.6[e]). The purpose of describing and analyzing a no project alternative is to allow decision makers to compare the impacts of approving a proposed project with the impacts of not approving the proposed project. If the no project alternative is the environmentally superior alternative, CEQA requires that the EIR "…shall also identify an environmentally superior alternative among the other alternatives." (CCR Section 15126[e][2]).

In defining "feasibility" (e.g., "… feasibly attain most of the basic objectives of the project …"), CCR Section 15126.6(f) (1) states, in part:

> Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent). No one of these factors establishes a fixed limit on the scope of reasonable alternatives.

In determining what alternatives should be considered in the EIR, it is important to consider the objectives of the project, the project's significant effects, and unique project considerations. These factors are crucial to the development of alternatives that meet the criteria specified in Section 15126.6(a). Although, as noted above, EIRs must contain a discussion of "potentially feasible" alternatives, the ultimate determination as to whether an alternative is feasible or infeasible is made by the lead agency's decision-making body, here the Regional San Board of Directors. (See PRC Sections 21081.5, 21081[a] [3].)

5.2 CONSIDERATIONS FOR SELECTION OF ALTERNATIVES

5.2.1 Attainment of Project Objectives

As described above, one factor that must be considered in selection of alternatives is the ability of a specific alternative to attain most of the basic objectives of the project (CCR Section 15126.6[a]). Chapter 2, "Project Description," articulates the objectives for the proposed Regional San BioGeneration Facility Project, which are repeated below.

The goal of the project is to design and construct a biogas cogeneration facility before the Commodity Agreement expires in October 2025 that meets the following objectives:

- make the best use of biogas (highest economic and environmental value, greatest overall efficiency);
- minimize operations and maintenance costs;
- integrate into the existing Sacramento Regional Wastewater Treatment Plant (SRWTP) facilities;
- reduce emissions associated with use of biogas venting and flaring compared to existing conditions; and
- protect the environment through responsible stewardship of natural resources.

5.2.2 Environmental Impacts of the Regional San BioGeneration Facility Project

Sections 3.1 through 3.4 of this Draft EIR address the environmental impacts of implementation of the proposed Regional San BioGeneration Facility Project. Potentially feasible alternatives were developed with consideration of avoiding or lessening the significant, and potentially significant, adverse impacts of the project, as identified in Chapter 3 of this Draft EIR and summarized below. However, all significant impacts associated with the project would be reduced to less than significant with mitigation that the lead agency has agreed to adopt. Therefore, the consideration of alternatives that reduce or avoid the significant environmental impacts of the project is limited. Offsite alternatives are constrained, because the location of the project requires proximity to the SRWTP, the source of biogas; any distant alternatives would require pipeline and other infrastructure between the SRWTP and the biogeneration project, increasing potential impacts. Any onsite alternatives would be subject to the same significant but mitigable impacts, as shown below, because these are potential impacts that would occur anywhere in proximity to the SRWTP. For these reasons, while this chapter considers a reasonable range of alternatives in accordance with State CEQA Guidelines Section 15126.6(a), there are no alternatives that would avoid or substantially lessen significant effects related to the project. If an environmental issue area analyzed in this Draft EIR is not addressed below, it is because no significant impacts were identified for that issue area.

The project's impacts, which would be less than significant after implementation of mitigation measures, are listed below.

- Biological Resources:
  - Project implementation could lead to potential loss of bird nests due to disturbance from construction activities proximate to nesting trees. Loss of nests could include nest abandonment, failure, and/or mortality of chicks or eggs. Mitigation Measures 3.2-1a (avoid disturbance of Swainson's hawk, loggerhead shrike, and other raptor nests), 3.2-1b (avoid disturbance of burrowing owl nests), and 3.2-1c (avoid disturbance of tricolored blackbird or common native bird nests or foraging habitat) are included to reduce this impact to a less-than-significant level (Impact 3.2-1).
- Cultural and Tribal Cultural Resources:
  - Project-related ground-disturbing activities could result in discovery or damage of yet undiscovered archaeological resources as defined in State CEQA Guidelines Section 15064.5. Mitigation Measure 3.3-1 (unanticipated discoveries of archaeological resources) is included to reduce this impact to a less-than-significant level (Impact 3.3-1).

- It is possible that yet-undiscovered tribal cultural resources could be encountered or damaged during ground-disturbing construction activities. Mitigation Measure 3.3-2 (unanticipated discoveries of potential tribal cultural resources) is included to reduce this impact to a less-than-significant level (Impact 3.3-2).

5.3 ALTERNATIVES CONSIDERED BUT NOT EVALUATED FURTHER

As described above, State CEQA Guidelines Section 15126.6(c) provides that the range of potential alternatives for the project shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects. Alternatives that fail to meet the fundamental project purpose need not be addressed in detail in an EIR.

In determining what alternatives should be considered in the EIR, it is important to acknowledge the objectives of the project, the project's significant effects, and unique project considerations. These factors are crucial to the development of alternatives that meet the criteria specified in Section 15126.6(a). Although, as noted above, EIRs must contain a discussion of "potentially feasible" alternatives, the ultimate determination as to whether an alternative is feasible or infeasible is made by lead agency decision-maker(s). (See PRC Section 21081[a][3].) At the time of action on the project, the decision-maker(s) may consider evidence beyond that found in this EIR in addressing such determinations. The decision-maker(s), for example, may conclude that a particular alternative is infeasible (i.e., undesirable) from a policy standpoint and may reject an alternative on that basis provided that the decision-maker(s) adopts a finding, supported by substantial evidence, to that effect, and provided that such a finding reflects a reasonable balancing of the relevant economic, environmental, social, and other considerations supported by substantial evidence.

The EIR should also identify any alternatives that were considered by the lead agency but were rejected during the planning or scoping process and briefly explain the reasons underlying the lead agency's determination.

The following alternatives were considered by Regional San but are not evaluated further in this Draft EIR for the reasons expressed below.

5.3.1 Gas Turbine Alternative

This alternative would include three (two duty, one standby), 4.6-MW gas turbines rather than combustion engines to convert the biogas to power and heat. Large gas turbines are far less common than combustion engines in wastewater biogas applications. Turbines of this size have an electrical efficiency of 38 percent, which is lower than combustion engines. This alternative would not need exhaust treatment and these units can be "containerized," which would eliminate the need for a building. This alternative would provide heat for the hot water loop for digester heating. This alternative would result in less air quality and GHG emissions compared to the project and reduced impacts and costs related to construction of a building; however, the size of turbines proposed for this alternative are only available from one manufacturer and specialized maintenance would be required for the proposed facilities resulting in increased overall long-term costs related to this alternative. Further, the air quality impacts are less-than-significant with the project and there would be no impact with regard to GHG emissions (less emissions than existing conditions), so this alternative would not substantially reduce any impacts. In addition, combustion engines are more efficient and allow for more flexibility in sizing for duty and standby units compared to gas turbines. This alternative would not meet the project objective to minimize operations and maintenance costs. For this reason, this alternative is not evaluated in detail in this EIR.

5.3.2 Gas Turbines with Onsite Fuel Alternative

This alternative would include the same components as the Gas Turbine Alternative described above with the addition of an onsite vehicle fueling system. Under this alternative, 90 percent of the biogas would be diverted to the internal gas turbines while the remaining 10 percent will be converted to vehicle fuel.

This alternative would generate vehicle fuel sufficient to fuel approximately 30 trucks per day, which is considered a standard fleet size due to logistics. Upgrading biogas for use as vehicle fuel delivers the highest value per unit of biogas; however, this alternative was not economically feasible due to high costs of constructing a biogeneration facility and a fueling station. In addition, construction of a biogeneration facility and fueling station would have a larger footprint than the proposed project, which would result in increased construction-related impacts, with commensurate increases in potential impacts to air quality, GHG emissions, biological resources, and unknown buried cultural resources. Operational air quality and GHG emissions under this alternative would be similar to the proposed project. Operation of this alternative would result in a moderate increase in long-term traffic on adjacent roadways related to an estimated 30 CNG trucks per day fueling at the SRWTP.

Specialized maintenance would also be required for the proposed facilities resulting in increased overall long-term costs, which would not meet the project objective to minimize operations and maintenance costs, and it would not offer any environmental advantages over the proposed project. For these reasons, this alternative is not evaluated in detail in this EIR.

5.3.3 Pipeline Injection Alternative

This alternative would upgrade raw biogas to California's natural gas pipeline standards and inject the upgraded biomethane into a nearby natural gas pipeline for distribution and sale as vehicle fuel. It would include a gas conditioning and separating system to remove carbon dioxide and achieve 99 percent methane to meet pipeline standards. Achieving this quality requires multiple stages of membranes in the gas separation system to remove CO_2. This alternative would also require a connection with PG&E's infrastructure. This alternative would be eligible to receive LCFS and RIN incentives if the biomethane is purchased for fueling CNG vehicles. However, incentive values can fluctuate with market value. In addition, this alternative has a long and uncertain natural gas interconnection process (12 to 24 months). This alternative would have greater construction impacts related to installing a pipeline that would increase the project footprint and, therefore, would increase potential impacts to biological and cultural resources. In addition, this alternative would not meet the project objectives to make the highest economic value associated with use of the biogas should the market-based incentives decrease. In addition, this alternative would not provide heat for SRWTP's digesters. For these reasons, this alternative is not evaluated in detail in this EIR.

5.3.4 Alternative Location

This alternative considered construction of a biogeneration facility on an alternative site. Moving the biogeneration facility to an alternative location within the SRWTP would not reduce or avoid impacts because biological resource impacts would be similar or greater if the site selected is not already disturbed, and the potential for impacts to cultural and tribal cultural resources would be similar. Constructing a biogeneration facility at an alternative location outside of the SRWTP site would result in greater impacts compared to the project related to piping and infrastructure for transporting biogas from the SRWTP to the alternative location. This alternative would then not meet the project objective to be integrate into the existing Sacramento Regional Wastewater Treatment Plant (SRWTP) facilities. For these reasons, this alternative is not evaluated in detail in this EIR.

5.4 ALTERNATIVES SELECTED FOR DETAILED ANALYSIS

As discussed above, Regional San conducted a comprehensive analysis of potential alternatives, which led to selection of the proposed project as the alternative with the least impact, highest economic value, and best use of biogas. The proposed project would not result in significant unavoidable impacts and all alternatives considered below represent a reasonable range of alternatives in accordance with State CEQA Guidelines Section 15126.6(a) rather than alternatives that would avoid or substantially lessen significant effects related to the project. All of the alternatives would have environmental tradeoffs; that is, impacts to certain resource areas from an alternative would increase while others would decrease. In addition, there is more than one potential outcome related to the no project alternative; therefore, two no project alternatives are considered below: one that assumes extension of the existing

agreement with Sacramento Municipal Utility District (SMUD) and one that assumes the existing agreement expires. The following alternatives evaluated in this Draft EIR.

- Alternative 1: No Project – No Action Alternative assumes the proposed biogeneration facility would not be constructed. The project area would remain in its current condition and biogas generated at the SRWTP would be used to fuel boilers, with the rest being flared.
- Alternative 2: No Project – SMUD Agreement Extension Alternative assumes the biogeneration facility would not be constructed. The project area would remain in its current condition, and Regional San would continue to deliver renewable biogas generated at the SRWTP to SMUD in exchange for reliable utility and backup power, steam for digester heating, and revenue. The existing Commodity Agreement would be extended beyond 2025 under this alternative.
- Alternative 3: Trigeneration Alternative would include use of fuel cells to convert biogas from the SRWTP to heat and power. Heat and power would be used onsite for the SRWTP. In addition, this alternative would be designed to allow for generation of renewable hydrogen in the future.

Further details on these alternatives, and an evaluation of environmental effects relative to the proposed project, are provided below.

5.4.1 Alternative 1: No Project – No Action Alternative

Under Alternative 1, the No Project – No Action Alternative, the proposed biogeneration facility would not be constructed. The project area would remain in its current condition and the Commodity Agreement with SMUD would expire. The majority of biogas produced at the SRWTP would be flared and a small portion would be used as fuel in boilers to produce heat. This alternative would avoid the impacts related to construction and operations of the project but would not meet the objectives of the project to make the best use of the biogas (highest economic and environmental value, greatest overall efficiency), reduce emissions associated with use of biogas venting and flaring compared to existing conditions, and protect the environment through responsible stewardship of natural resources.

For purposes of comparison with the other action alternatives, conclusions for each technical area are characterized as "impacts" that are greater, similar, or less, to describe conditions that are worse than, similar to, or better than those of the proposed project.

AIR QUALITY

Under Alternative 1, emissions related to construction of the new biogeneration facility would not occur. However, under this alternative the existing Commodity Agreement between Regional San and SMUD would expire, and Regional San would need to flare the biogas produced by the wastewater treatment process that would no longer be delivered to SMUD. Long-term emissions associated with flaring the additional biogas on-site would be much greater under this alternative compared to existing conditions and would increase over time as the amount of wastewater treated at the SRWTP increases. Overall, there would be greater impacts to air quality when compared the proposed project. Impacts under the project were determined to be less than significant. While construction-related air quality impacts would be avoided under Alternative 1, ongoing air quality impacts from flaring would be greater. Therefore, overall air quality impacts of Alternative 1 would be greater than the those from the project. *(Greater)*

BIOLOGICAL RESOURCES

Under Alternative 1, there would be no impacts to biological resources associated with construction of the new biogeneration facility. In addition, there would be no long-term operational impacts to biological resources related to Alternative 1 because flaring biogas is not expected to have a direct adverse effect on any biological resources. Section 3.2, "Biological Resources," concluded that the project would have potentially significant impacts to Swainson's Hawk, white-tailed kite, cooper's hawk, burrowing owl, loggerhead shrike, and other raptors, tricolor

blackbird, and common native birds. Alternative 1 would not result in new impacts to biological resources because there would be no construction or changes in disturbance within the project area. While impacts on biological resources under the project were determined to be less than significant with implementation of mitigation, impacts under Alternative 1 would be less than the those from the project. *(Less)*

CULTURAL AND TRIBAL CULTURAL RESOURCES

Alternative 1 would not result in impacts to archaeological, historical, or tribal cultural resources because there would be no ground disturbance within the project area with the potential to disturb unknown resources. Section 3.3, "Cultural and Tribal Cultural Resources," concluded that the project would have potentially significant impacts on archaeological and tribal cultural resources. These impacts would be reduced to a less-than-significant level with mitigation. While impacts on cultural and tribal cultural resources under the project were determined to be less than significant with implementation of mitigation, impacts under Alternative 1 would be less than the those from the project. *(Less)*

GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

Under Alternative 1, GHG emissions related to construction of the new biogeneration facility would not occur. However, under this alternative the existing Commodity Agreement between Regional San and SMUD would expire, and Regional San would need to flare most of the biogas produced by the wastewater treatment process which would have been delivered to SMUD. Long-term non-biogenic GHG emissions associated with flaring the additional biogas on-site would be much greater under this alternative compared to proposed project and would increase over time as the amount of wastewater treated at the SRWTP increases. Although SMUD's 2030 Carbon Zero Plan would reduce emissions from electricity to zero by 2030, Alternative 2 would not result in the net beneficial reduction in GHG emissions under the proposed project. While construction related GHG emissions would be avoided under Alternative 1, ongoing GHG emissions from flaring would be greater than those from the project. Therefore, overall impacts related to GHG emissions of Alternative 1 would be greater than the those from the project. *(Greater)*

5.4.2 Alternative 2: No Project – SMUD Agreement Extension Alternative

Under Alternative 2, the proposed biogeneration facility would not be constructed. The project area would remain in its current condition, and Regional San would continue to deliver renewable biogas generated by the SRWTP wastewater treatment process to SMUD, and SMUD would continue to deliver electricity, steam for digester heating, and revenue to Regional San in accordance with the Commodity Agreement terms. The existing Commodity Agreement would need to be extended beyond 2025 to allow for Regional San to continue to deliver biogas to SMUD.

A Commodity Agreement extension would continue Regional San's practice of selling biogas for offsite use subject to the California Accidental Release Program "covered" process regulations. The biogas value through the Commodity Agreement was determined to be lower than other alternatives (and the required extension price would likely exceed the value to SMUD). This alternative would not meet the project objectives to make the best use of biogas (highest economic and environmental value, greatest overall efficiency), minimize operations and maintenance costs, be exempted from the California Accidental Release Program "covered" process regulations, and reduce emissions associated with use of biogas venting and flaring compared to existing conditions.

AIR QUALITY

Under Alternative 2, emissions related to construction of the new biogeneration facility would not occur. In the long-term, digester gas produced by the SRWTP would continue to be delivered to Cosumnes Power Plant and/or Carson Cogen Plant and combustion of natural gas and remaining digester gas in existing boilers and flares would continue similar to existing conditions. Alternative 2 would result in greater long-term emissions compared to the proposed

project because the project would result in the curtailment of multiple stationary sources operated by Regional San, including digester gas flaring by SRWTP's enclosed flares (ground flares) and waste gas burners, as well as three boilers used to generate steam. Although the project would also increase direct emissions of criteria air pollutants from the combustion of digester gas diverted from SMUD and natural gas in the CHP engines, these emissions would be entirely offset under the New Source Review rule. Alternative 2 would be a continuation of existing permitted emissions sources and would not be subject to or have any additional emissions offset under the New Source review. Therefore, although short-term construction-related emissions would be avoided under this alternative, long-term emissions are expected to be greater compared to those related to the proposed project. Overall, air quality impacts of Alternative 2 would be greater than the proposed project. *(Greater)*

BIOLOGICAL RESOURCES

Under Alternative 2, there would be no impacts to biological resources associated with construction of the new biogeneration facility. In addition, there would be no long-term operational impacts to biological resources related to Alternative 2 because continuing to sell the biogas to SMUD in exchange for electricity and heat is not expected to have a direct adverse effect on any biological resources. Alternative 2 would not result in new impacts to biological resources because there would be no construction or changes in disturbance within the project area. While impacts on biological resources under the project were determined to be less than significant with implementation of mitigation, impacts to biological resources under Alternative 2 would be less than the proposed project. *(Less)*

CULTURAL AND TRIBAL CULTURAL RESOURCES

Alternative 2 would not result in impacts to archaeological, historical, or tribal cultural resources because there would be no construction within the project area. In addition, continuing to sell the biogas to SMUD in exchange for electricity and heat is not expected to have a direct adverse effect on cultural resources in the long-term. While impacts on cultural resources under the project were determined to be less than significant with implementation of mitigation, Alternative 2 would have less potential for impacts to archaeological and tribal cultural resources than the proposed project. *(Less)*

GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

Under Alternative 2, GHG emissions related to construction of the new biogeneration facility would not occur. GHG emissions would continue to be generated through electricity purchased from SMUD and operation of boilers and flares under Alternative 2. Electricity demand in the future will likely increase in proportion to the increased wastewater flow as the region's population grows. Although emissions from electricity generation would decline to zero by 2030 under SMUD's 2030 Zero Carbon Plan, Alternative 2 would not result in a net reduction in GHG emissions that would occur under the project. Therefore, although short-term construction-related emissions would be avoided, long-term emissions would be greater. Overall, there would be a greater impact related to GHG emissions when compared the proposed project. *(Greater)*

5.4.3 Alternative 3: Trigeneration Alternative

Alternative 3 would include use of fuel cells to convert biogas from the SRWTP to heat and power. Heat and power would be used onsite for the SRWTP. In addition, this alternative would be designed to allow for generation of renewable hydrogen in the future that would be sold for offsite uses. While this alternative would result in less operational air quality emissions, it would result in greater impacts to GHG emissions, biological resources, and cultural resources. This alternative would not meet all the objectives of the project, and fuel cell technology fueled with wastewater biogas has had limited success. Because fuel cell technology does not rely on combustion and does not have hot exhaust gases for heat recovery, fuel cells would not provide adequate heat for SRWTP's onsite demands. Under this alternative, Regional San would need to purchase additional power from the grid to meet electricity demands and would need to use an additional source of heat (i.e., supplemental boiler, potentially fueled with natural gas).

The offsite sale of hydrogen may require compliance with the California Accidental Release Program and Cal/OSHA "covered" process regulations. The level of effort associated with Risk Management Plan and Process Safety Management required to be in compliance with the "covered process" is significant and could result in additional costs related to this alternative. In addition, the current demand for hydrogen is a small fraction of the amount of hydrogen that Regional San would produce. Therefore, generation and sale of renewable hydrogen is not feasible at this time and evaluation of impacts would be speculative. Therefore, additional CEQA would be required in the future, to address construction and distribution of renewable hydrogen.

AIR QUALITY

Under Alternative 3, emissions associated with construction of the new biogeneration facility would not occur; however, this alternative would result in emissions associated with construction of infrastructure associated with fuel cells and a supplemental boiler and use and transport of hydrogen. Long-term emissions associated with fuel cells would be less than compared to the proposed project; however, there would likely be increased flaring emissions due to fuel cells being less reliable than engines. There would also be increased emissions associated with the boiler compared to the proposed project because the fuel cells would not provide enough heat for the SRWTP. There would be less fuel combustion on-site, which would result in lower criteria pollutant emissions generated than the proposed project. Additional power would need to be provided by grid electricity (Table 5-1). Overall, impacts to air quality would be less than the proposed project. Impacts under the project were determined to be less than significant (*Less)*.

Table 5-1 Comparison of Alternative 3 and Proposed Project Emissions

Source	ROG	NO_X	PM_{10}		$PM_{2.5}$	
	lb/day	lb/day	lb/day	tpy	lb/day	tpy
Alternative 3						
Supplemental Boiler[1]	0.5	6.6	2.5	0.5	2.5	0.5
Flares[2]	1.3	2.6	0.5	0.1	2.5	0.5
Area[3]	0.4	0.0	0.0	0.0	0.0	0.0
Mobile[3]	0.1	0.1	0.1	0.0	>0.1	0.0
Required Permit Offsets[4]	4	4	4	4	4	4
Total	**2.2**	**9.2**	**3.1**	**0.6**	**5.0**	**0.9**
Proposed Project						
CHP Engines[5]	97.9	123.8	77.5	14.1	77.5	14.1
Area	0.4	0.0	0.0	0.0	0.0	0.0
Mobile	0.1	0.1	0.1	0.0	>0.1	0.0
Required Permit Offsets[6]	-97	-118	0	0	0	0
Total	**0.9**	**6.0**	**77.6**	**14.1**	**77.5**	**14.1**

Notes: ROG = reactive organic gas; NO_X = oxides of nitrogen; PM_{10} = respirable particulate matter; lb/day = pounds per day; CHP=combined heat and power

[1] Supplemental boiler emissions based on 7.5 MMBTU/hr energy shortfall to fill with additional boiler(s). Assumes boiler would be powered by natural gas.

[2] Flare emissions are based on the assumption that 18 percent of digester gas would be flared.

[3] Area sources include occasional maintenance of architectural coating and the use of consumer products, such as cleaners. Mobile sources from the project represent additional emissions from new employee commute.

[4] Offset requirements for Alternative 3 are unknown at this point but would be quantified as part of any permit application under Rule 202. Total emissions under Alternative 3 do not account for required permit offsets.

[5] Based on Operational Scenario 1 in the Air Permit Application where engines are running at full capacity (100 percent annual average digester gas + natural gas). No flare or boiler operation.

[6] Based on annual offsets of 18 tons of ROG and 22 tons of NO_X divided by 365 days per year.

See Appendix B for detailed calculations.

Source: Modeled by Ascent Environmental in 2022 and 2023

BIOLOGICAL RESOURCES

Under Alternative 3, the impacts to biological resources associated with construction of the biogeneration facility would be avoided; however, this alternative would likely result in impacts to biological resources associated with construction of infrastructure associated with fuel cells and a supplemental boiler. In the long-term, impacts to biological resources are expected to be similar to those of the proposed project. Therefore, overall impacts to biological resources under Alternative 3 would be similar to those under the project. *(Similar)*

CULTURAL AND TRIBAL CULTURAL RESOURCES

Under Alternative 3, the impacts to archaeological and tribal cultural resources associated with construction of the biogeneration facility would be avoided; however, this alternative could result in impacts to cultural resources associated with construction of infrastructure associated with fuel cells and a supplemental boiler. In the long-term, impacts to cultural resources would be the same under Alternative 3 compared to the proposed project. Therefore, overall Alternative 3 would have similar impacts to archaeological and tribal cultural resources. *(Similar)*

GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

Under Alternative 3, GHG emissions associated with construction of the new biogeneration facility would not occur; however, this alternative would result in GHG emissions associated with construction of infrastructure associated with fuel cells and a supplemental boiler and use and transport of hydrogen. Long-term GHG emissions associated with fuel cells would be similar to the proposed project; however, there would be increased GHG emissions due to the need to power the supplemental boiler (likely with natural gas), and the additional flaring needed due to fuel cells being less reliable than engines. Moreover, the fuel cells are expected to have an "uptime" of 63 percent (based on historical performance of fuel cells on wastewater biogas). During the times when the fuel cells are offline and not producing energy, electricity would be needed from the utility grid to meet the facility's energy demand, increasing energy consumption and GHG emissions relative to the proposed project (Table 5-2). While the energy from grid-based electricity from SMUD is anticipated to become carbon neutral after 2030, there would be GHG emissions from utility grid energy through at least 2030. Overall, there would be greater impacts related to GHG emissions when compared the proposed project. The project would result in a reduction in GHG emissions compared to existing conditions. GHG emissions of Alternative 3 would be greater than the project. *(Greater)*

Table 5-2 Comparison of Alternative 3 and Proposed Project Greenhouse Gas Emissions ($MTCO_2e$ per Year)

Source	2024	2045
Alternative 3		
Grid-Based Electricity Demand[1]	11,188	0
Boiler/Flares[2]	3,496	3,496
Mobile	16	16
Total	**14,699**	**3,512**
Project Emissions		
Grid-Based Electricity Demand[3]	4,190	0
CHP Engines[3,4]	2,835	4,655
Mobile	16	16
Total	**7,041**	**4,671**

Notes: Totals may not add due to rounding.

$MTCO_2e$ = metric tons of carbon dioxide equivalent; CHP=combined heat and power

[1] Based on the assumption that grid electricity demand would increase 37 percent over existing demand to compensate for anticipated fuel cell down time (Adrian, pers. comm. 2022).

[2] Supplemental boiler emissions based on 7.5 MMBTU/hr energy shortfall to fill with additional boiler(s). Assumes boiler would be powered by natural gas.

[3] The project would still require electricity from the grid, but at a lower rate than existing conditions.

[4] Based on Operational Scenario 1 in the Air Permit Application where engines are running at full capacity (100 percent annual average digester gas + natural gas). 10 percent natural gas content is assumed. No flare or boiler operation.

See Appendix B for detailed calculations.

Source: Modeled by Ascent Environmental in 2022 and 2023

5.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA requires identification of an environmentally superior alternative in an EIR but gives no definition for the term (State CEQA Guidelines Section 15126.6(e)). For the purposes of this EIR, the environmentally superior alternative is the alternative that would result in the fewest potentially significant impacts while achieving most of the basic project objectives to the greatest extent. Table 5-3 presents a comparison of the environmental effects of each alternative relative to the proposed project.

As illustrated in Table 5-3, below, Alternatives 1 and 2 would be marginally environmentally superior with respect to biological and cultural resources, even though these impacts are fully mitigated with the project. However, impacts related to air quality and GHG emissions would be greater for Alternatives 1 and 2. Alternatives 1 and 2 would avoid or reduce some mitigated (to less-than-significant) impacts associated with the project but would result in greater impacts for other resource areas. Alternative 3 would reduce impacts associated air quality compared to the project but would result in greater impacts related to GHG emissions. With each alternative, there would be environmental tradeoffs; that is, impacts to certain resource areas from an alternative would increase while others would decrease relative to the proposed project. In light of these tradeoffs among the alternatives and the proposed project, none of the alternatives clearly stands out as environmentally superior. Identification of the environmentally superior alternative is, therefore, not an objective choice based on quantifiable criteria, but rather, an exercise of discretion in balancing environmental priorities among potential impacts in relation to the extent to which the alternative would meet the project objectives.

Table 5-3 Summary of Environmental Effects of the Alternatives Relative to the Proposed Regional San BioGeneration Facility Project

Environmental Topic	Proposed Project	Alternative 1: No Project – No Action Alternative	Alternative 2: No Project – SMUD Agreement Extension Alternative	Alternative 3: Trigeneration Alternative
Air Quality	LTS	Greater	Greater	Less
Biological Resources	LTS/M	Less	Less	Similar
Cultural and Tribal Cultural Resources	LTS/M	Less	Less	Similar
Greenhouse Gas Emissions and Climate Change	NI	Greater	Greater	Greater

Notes: NI = no impact; LTS = less than significant; LTS/M = less than significant with mitigation

Source: Compiled by Ascent Environmental in 2023

5.5.1 Ability of Alternatives to Achieve Project Objectives

The proposed project would achieve the objectives to the greatest degree of any alternative. Alternative 1 would not meet any of the project objectives and Alternative 3 would only partially meet the objectives because it would not provide adequate heat for SRWTP's onsite demands. Alternative 2 would not meet most of the project objectives, including making the best use of biogas (highest economic and environmental value, greatest overall efficiency), minimizing operations and maintenance costs, or reducing emissions associated with use of biogas venting and flaring compared to existing conditions.

6 OTHER CEQA SECTIONS

6.1 GROWTH-INDUCING IMPACTS

CEQA specifies that growth-inducing impacts of a project must be addressed in an EIR (CCR Section 21100[b][5]). Specifically, Section 15126.2(d) of the State CEQA Guidelines states that the EIR shall:

> Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also, discuss the characteristics of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

Direct growth inducement would result if a project involved construction of new housing, which would facilitate new population to an area. Indirect growth inducement would result, for instance, if implementing a project resulted in any of the following:

- substantial new permanent employment opportunities (e.g., commercial, industrial, or governmental enterprises);
- substantial short-term employment opportunities (e.g., construction employment) that indirectly stimulates the need for additional housing and services to support the new temporary employment demand; and/or
- removal of an obstacle to additional growth and development, such as removing a constraint on a required public utility or service (e.g., construction of a major sewer line with excess capacity through an undeveloped area).

The State CEQA Guidelines do not distinguish between planned and unplanned growth for purposes of considering whether a project would foster additional growth. Therefore, for purposes of this EIR, to reach the conclusion that a project is growth-inducing as defined by CEQA, the EIR must find that it would foster (i.e., promote, encourage, allow) additional growth in economic activity, population, or housing, regardless of whether the growth is already approved by and consistent with local plans. The conclusion does not determine that induced growth is beneficial or detrimental, consistent with Section 15126.2(d) of the State CEQA Guidelines.

If the analysis conducted for the EIR results in a determination that a project is growth-inducing, the next question is whether that growth may cause adverse effects on the environment. Environmental effects resulting from induced growth (i.e., growth-induced effects) fit the CEQA definition of "indirect" effects in Section 15358(a)(2) of the State CEQA Guidelines. These indirect or secondary effects of growth may result in significant environmental impacts. CEQA does not require that the EIR speculate unduly about the precise location and site-specific characteristics of significant, indirect effects caused by induced growth, but a good-faith effort is required to disclose what is feasible to assess. Potential secondary effects of growth could include consequences—such as conversion of open space to developed uses, increased demand on community and public services and infrastructure, increased traffic and noise, degradation of air and water quality, or degradation or loss of plant and wildlife habitat—that are the result of growth fostered by the project.

6.1.1 Growth-Inducing Impacts of the Project

GROWTH-INDUCING EFFECTS OF CONSTRUCTION

Project construction would last between 18 and 24 months and would require between 15 and 20 construction workers per day during construction of the new facilities. Once construction is complete, four construction workers per day for up to 2 weeks would be required for abandonment/demolition of the existing utilities. The construction labor pool in Sacramento

County is more than 79,000 people (State of California Employment Development Department 2021). Because of the relatively small number of construction workers needed, the relatively short duration required for construction, and the available labor pool, the project is not expected to result in construction workers relocating to the area.

GROWTH-INDUCING EFFECTS OF OPERATION

The project would require up to 10 additional full-time employees to operate and maintain the new facilities. Similar to construction, it is assumed that the 10 new positions would be filled by local residents. The project would not include the construction of new homes or businesses, nor would it extend roads or infrastructure that would lead to population growth. The project would construct a new biogeneration facility but would not increase the capacity of the SRWTP or generate electricity beyond what is needed at the SRWTP. Therefore, the project would not induce growth in the project area, either directly or indirectly.

6.2 SIGNIFICANT AND UNAVOIDABLE ADVERSE IMPACTS

The State CEQA Guidelines Section 15126.2(b) requires EIRs to include a discussion of the significant environmental effects that cannot be avoided if the proposed project is implemented. As documented throughout Chapter 3 (project level impacts) and Chapter 4 (cumulative Impacts) of this Draft EIR, after implementation of the recommended mitigation measures, no significant and unavoidable environmental impacts resulting from the project were identified. All of the impacts associated with the project would be less than significant after implementation of mitigation measures.

6.3 SIGNIFICANT AND IRREVERSIBLE ENVIRONMENTAL CHANGES

The State CEQA Guidelines (Section 15126) require a discussion of the significant irreversible environmental changes that would be involved in a project should it be implemented. The irreversible and irretrievable commitment of resources is the permanent loss of resources for future or alternative purposes. Irreversible and irretrievable resources are those that cannot be recovered or recycled or those that are consumed or reduced to unrecoverable forms.

The project would result in the irreversible and irretrievable commitment of energy and material resources during construction and operation, including the following:

- construction materials, including such resources as concrete and steel;
- water supply for project operation and maintenance activities;
- energy expended in the form of electricity, gasoline, diesel fuel, and oil for equipment and transportation vehicles that would be needed for project construction and operation; and
- natural gas used for blending with biogas for operation.

The use of these nonrenewable resources is expected to account for a minimal portion of the region's resources and would not affect the availability of these resources for other needs within the region. Construction activities would not result in inefficient use of energy, as described in Section 1.2.1, "Effects Found Not to be Significant," under the subsection, "Energy." Construction contractors selected would use best available engineering techniques, construction and design practices, and equipment operating procedures. Long-term project operation would not result in substantial long-term consumption of energy and natural resources because the project would be designed using energy efficient technologies. An objective of the project is to increase the overall efficiency related to the use of biogas produced at the SRWTP. Although natural gas would be blended with biogas for operation of the project, natural gas is currently blended with biogas at the Carson Cogen Plant and/or Cosumnes Power Plant, which is where the biogas is currently processed. Therefore, the overall natural gas use is expected to be similar to existing conditions. In addition, the project would produce between 10 and 15 megawatts of power, which would offset utility power purchases.

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Appendix A

Notice of Preparation, Initial Study, and Comments

SACRAMENTO REGIONAL COUNTY SANITATION DISTRICT
NOTICE OF PREPARATION OF
AN ENVIRONMENTAL IMPACT REPORT
FOR THE BIOGENERATION FACILITY PROJECT

Date: August 16, 2021

To: Responsible Agencies, Trustee Agencies, and Interested Persons

RE: Notice of Preparation of a Draft Environmental Impact Report for the Regional San BioGeneration Facility Project

The Sacramento Regional County Sanitation District (Regional San) is proposing to construct and operate a biogas cogeneration facility (proposed project) within the existing Sacramento Regional Wastewater Treatment Plant (SRWTP) site. The proposed project would beneficially use biogas produced by the SRWTP's anaerobic digesters to generate heat and power. An Initial Study/Mitigated Negative Declaration for the Regional San BioGeneration Facility Project was released for public review in June 2021 (State Clearinghouse No. 2021050080). Regional San has subsequently decided to prepare a focused EIR in accordance with the provisions of the California Environmental Quality Act (CEQA).

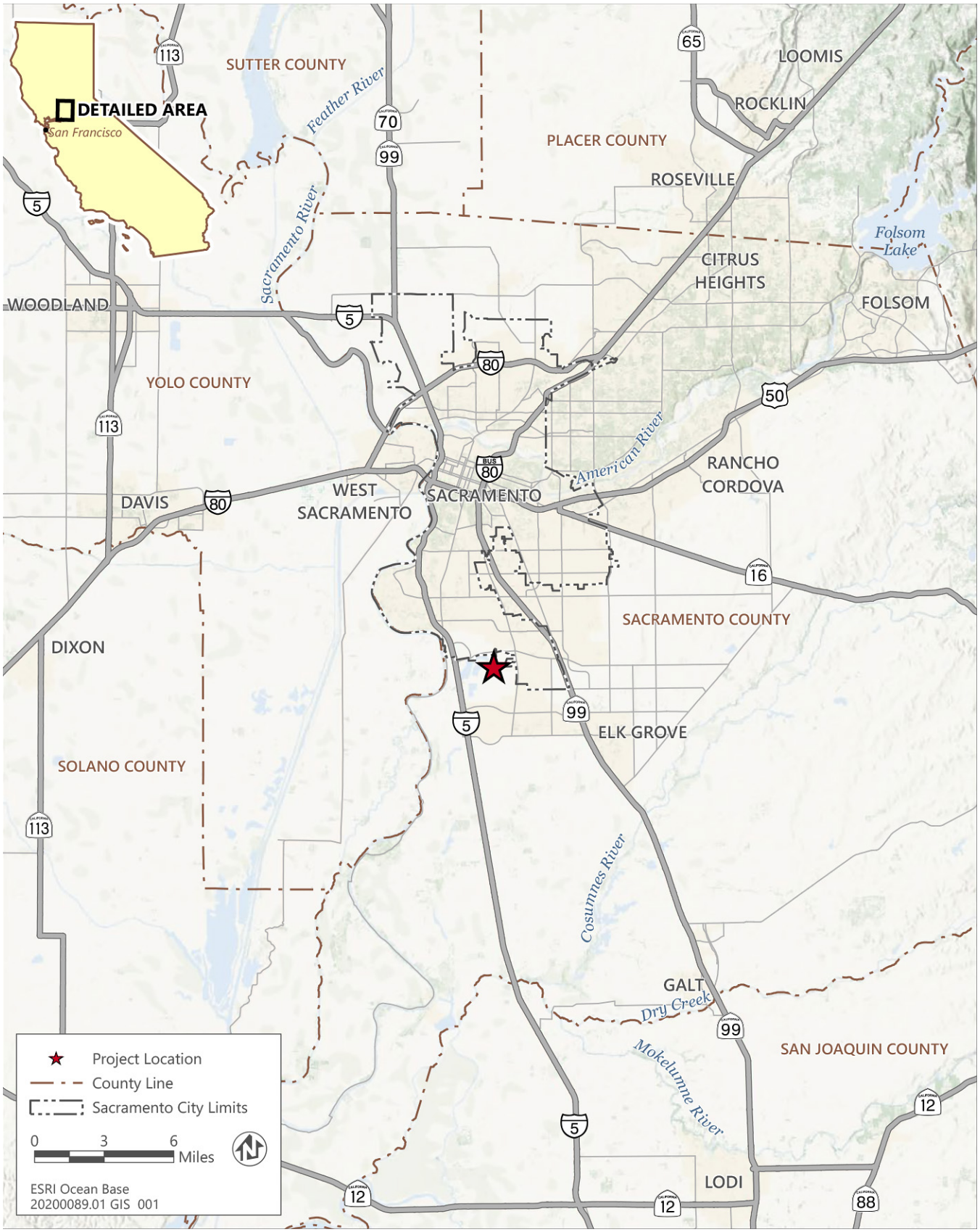
PURPOSE OF THIS NOTICE OF PREPARATION

This Notice of Preparation (NOP) has been prepared pursuant to Sections 15082 and 15083 of the CEQA Guidelines. The purpose of this NOP is to provide an opportunity for the public, interested parties, and public agencies to comment on the scope and proposed content of the EIR. This NOP starts a public scoping period that will assist Regional San in the preparation of the Draft EIR. The public scoping period is 30 days and will run from August 16, 2021, to September 14, 2021. The purpose of the NOP is to provide sufficient information about the project and its potential environmental impacts to allow agencies and the interested parties the opportunity to provide a meaningful response related to the scope and content of the EIR, including possible environmental impacts, mitigation measures, and alternatives. The NOP and Initial Study are also available online at: https://www.regionalsan.com/biogas-recycling.

The project location, description, and potential environmental effects are summarized below. A more detailed project description is included in the attached Initial Study.

PROJECT LOCATION

The SRWTP is located at 8521 Laguna Station Road in Elk Grove and is surrounded by approximately 2,150 acres of open space owned by Regional San and known as the Bufferlands (Figure 1). The entire SRWTP site and Bufferlands are located north of Laguna Boulevard and lie predominantly within the unincorporated area of Sacramento County, between Franklin Boulevard and I-5 (Figure 2). The project site would be located within the SRWTP site in a previously disturbed area north of the existing digesters. The site is bordered by Digesters Way/Oregon Trail to the south and Septage Way to the north. The staging area would be immediately east of the project site (Figure 3).



Source: adapted by Ascent Environmental in 2020

Figure 1 Reginal Location

Source: adapted by Ascent Environmental in 2021

Figure 2 Project Location

Source: adapted by Ascent Environmental in 2021

Figure 3 Project Site

PROJECT BACKGROUND

Regional San owns and operates the SRWTP and a regional wastewater conveyance system (sewer lines and interceptors), and provides wastewater conveyance and treatment services to residential, industrial, and commercial customers throughout unincorporated Sacramento County; the cities of Citrus Heights, Elk Grove, Folsom, Rancho Cordova, Sacramento, and West Sacramento; and the communities of Courtland and Walnut Grove. The wastewater treatment process generates a variety of solids including primary sludge, grit, screenings (i.e., large debris), return activated sludge, and waste activated sludge. Regional San feeds blended primary sludge and thickened waste activated sludge to six primary anaerobic digesters and two blending digesters. Anaerobic digestion produces biogas, which is a methane-rich, renewable byproduct of the solids digestion process that can be used as a renewable fuel.

Regional San has been in partnership with Sacramento Municipal Utility District (SMUD) through the Central Valley Financing Authority for nearly 30 years. Under this partnership, Regional San delivers renewable biogas generated by the SRWTP wastewater treatment process to SMUD in exchange for reliable utility and backup power, steam for digester heating, and revenue according to the terms of the existing Commodity Agreement. The original driver for the agreement was the co-location of SMUD's Carson Cogeneration (Cogen) Plant on the SRWTP site, where biogas helped fuel the Carson Cogen plant, and steam from the Carson Cogen plant could be returned for digester heating. With the Commodity Agreement expiring in 2025, Regional San is pursuing the proposed project described below as an alternative use for its biogas.

PROJECT DESCRIPTION

The proposed project would include construction and operation of a new cogeneration engine system to use biogas onsite to produce electricity and heat for the SRWTP. The biogas cogeneration system would have several major interfaces with existing SRWTP systems including the following:

- gas management system,
- digester heating system,
- electrical power distribution system,
- plant computer control system, and
- site utilities.

The proposed project would include the following components:

- up to six internal combustion engine generators,
- engine exhaust treatment (oxidation catalyst and selective catalytic reduction),
- a biogas conditioning system (as part of the gas management system),
- hot water boiler (standby), and
- a new building.

Implementation of the project would also result in the curtailment of multiple stationary sources operated by Regional San under existing conditions, including digester gas flaring by SRWTP's enclosed flares (ground flares) and waste gas burners, as well as three boilers used to generate steam. The project would eliminate surplus flaring related to maintenance and unforeseeable overpressure events because this project would allow Regional San to operate its own digester gas conditioning system and schedule and stagger maintenance of the Combined Heat and Power (CHP) engines such that downtime would be minimized. Also, once the project is operational, the three boilers currently operated by Regional San, would no longer be required and would be decommissioned, thereby no longer generating emissions.

Combustion Engine Generators

The proposed combustion engine generators would produce between 10 and 15 MW of power, which would offset utility power purchases. In addition, one engine would serve as a standby. The project would include between four and six engine generators depending on the engine size selected. However, regardless of the number of engines selected, the combined power generation would not exceed 15 MW. Options for number of engines and engine sizes are shown in Table 1.

Table 1 Combustion Engine Generator Options

Engine Size	Number of Units (including 1 Standby)	Firm Capacity	Total Capacity
2 MW	5 + 1	10 MW	12 MW
3 MW	4 + 1	12 MW	15 MW
3.5 MW	3 + 1	10.5 MW	14 MW

The new engines would be required to meet the best-available control technology for all criteria pollutants, as required by the Sacramento Metropolitan Air Quality Management District (SMAQMD) Rule 201, Section 301.

Annual electricity generated by the engines is estimated to be between 74,460 megawatt hours (MWh) and 105,000 MWh per year.

The engine system would cogenerate power and heat. Heat recovered from engine exhaust and jacket water (water that flows through the engine to keep it from overheating) would be used for process and space heating at the SRWTP. The cogeneration system would have sufficient capacity to meet the SRWTP's average heat demand of 20 million British Thermal Units per hour (MMBtu/hr).

Engine Exhaust Treatment

Exhaust from the engines would be treated by oxidation catalyst and selective catalytic reduction to reduce carbon monoxide and NO_x, respectively. The selective catalytic reduction would use urea injection.

Biogas Conditioning System

The biogas conditioning system would be part of the larger gas management system and would remove hydrogen sulfide, siloxanes, and water from the biogas using a media that would be disposed of at an approved landfill. This system would consist of the following individual components:

- hydrogen sulfide removal vessels (granular iron oxide),
- cooling heat exchangers,
- blowers,
- glycol chillers and pumps,
- siloxane removal vessels, and
- particle filters.

Hot Water Boiler

One hot water boiler would be installed as part of the project to produce hot water needed to operate the digesters at optimal temperature. The boiler would be located within the new building or adjacent to the building under a canopy and would produce 19.9 MMBtu/hr of heat. The boiler would serve as a back-up heat source to the cogeneration engines.

Engine and Boiler Building

The project would include one new building constructed within the project site immediately north of the existing digesters. The building would house the engines, electrical equipment, a control room, and a restroom. The building would be a maximum of 36 feet tall and is expected to be approximately 15,000 square feet.

Construction Schedule

Construction of the project would last between 18 and 24 months and is anticipated to begin in 2022. Typical construction activities would include earthwork such as grading, excavation, trenching, backfilling, hauling, and compaction. Additionally, underground piping and utilities would be constructed. Paving, lighting, drainage, and reinforced structures including the new building would be constructed. Delivery of construction materials and supplies to the site would be required. In total, up to 5.6 acres would be disturbed by project construction and staging. A small amount of fill may need to be removed from the project site and would be disposed of within the SWRTP site at a location already used for operations and not containing any biological resources habitat. Construction equipment would include excavators, dozers, compactors, graders, and backhoes.

Typical work hours would be Monday through Friday from 7:00 a.m. to 7:00 p.m. (construction noise is exempt from noise ordinances between 6:00 a.m. and 8:00 p.m. on weekdays within Sacramento County). No nighttime work is anticipated. Equipment, material, and vehicle staging would be accommodated at the SRWTP immediately east of the project site (Figure 1).

Ingress and egress for construction traffic would be via Laguna Boulevard to Dwight Road. Then to Central Street, which connects to Septage Way.

POTENTIAL ENVIRONMENTAL EFFECTS

As required by CEQA, the EIR will describe existing conditions and evaluate the potential environmental effects of the proposed project and a reasonable range of alternatives, including the no-project alternative. It will address direct, indirect, and cumulative effects. The EIR will also discuss potential growth-inducing impacts and summarize significant and unavoidable environmental effects. The EIR will identify feasible mitigation measures, if available, to reduce potentially significant impacts. Based on the results of the Initial Study prepared for the proposed project (and attached to this NOP or available on Regional San's website), Regional San has determined that the project has the potential to result in significant environmental impacts in the following topic areas, which will be further evaluated in the EIR:

Air Quality. During construction of the proposed project, criteria air pollutant emissions would be temporarily and intermittently generated. Operation of the proposed project would result in criteria air pollutants and precursors emitted by the new biogeneration facility that would use biogas from the digesters and natural gas to generate electricity, and by the additional worker commute trips to and from the project site. The project would also result in the reduction in emissions from multiple existing stationary sources. Construction- and operations-related emissions have the potential to exceed thresholds adopted by SMAQMD. These issues will be evaluated in the EIR.

Biological Resources. Special-status wildlife species could potentially occur on the project site. Additionally, the surrounding Bufferlands provide habitat for special-status wildlife species and these species could be indirectly affected by project implementation (e.g., disturbance of nesting birds during construction). Implementation of the proposed project could result in disturbance of special-status species or their habitat. These issues will be evaluated in the EIR.

Cultural Resources. Although the North Central Information Center records search did not reveal any previously identified archaeological resources, project-related ground-disturbing activities could result in discovery or damage of yet undiscovered archaeological resources. This issue will be evaluated in the EIR.

Greenhouse Gas Emissions. Greenhouse gas (GHG) emissions generated by the proposed project during construction would predominantly be in the form of carbon dioxide (CO_2). Emissions would be associated with mobile-source exhaust from construction worker commute trips, truck haul trips, and equipment used for construction. The project's operational GHG emissions would include GHGs emitted by the new cogeneration system that would use natural gas to generate electricity (the biogas portion is renewable and does not contribute to GHG), and by the additional worker commute trips to and from the project site. These issues will be evaluated in the EIR.

Tribal Cultural Resources. Any tribal cultural resources that have the potential to occur on the project site will be assessed, and the potential impacts that may occur to known and unanticipated resources because of project implementation will be evaluated. The EIR will document the results of tribal consultation in accordance with Public Resources Code Section 21080.3.1 (Assembly Bill 52) and any mitigation measures for tribal cultural resources.

POTENTIAL PERMITS AND APPROVALS

The project would require an Authority to Construct Permit (for devices that emit air pollutants) and Permit to Operate from SMAQMD.

PROVIDING COMMENTS ON THIS NOTICE OF PREPARATION

Written and/or email comments on the NOP should be provided at the earliest possible date but must be received by 5:00 p.m. on **September 14, 2021**. Please send all comments on the NOP to:

Sacramento Regional County Sanitation District
10060 Goethe Road
Sacramento, CA 95827

Attn: Steve Nebozuk, Senior Civil Engineer
Phone: (916) 876-6118
E-mail: nebozuks@sacsewer.com

If you are from an agency that will need to consider the EIR when deciding whether to issue permits or other approvals for the project, please provide the name of a contact person. Comments provided by email should include the name and mailing address of the commenter in the body of the email.

INITIAL STUDY

REGIONAL SAN BIOGENERATION FACILITY PROJECT

Prepared for

REGIONALSAN

Sacramento Regional County Sanitation District

August 2021

INITIAL STUDY

Regional San BioGeneration Facility Project

Prepared for:

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20200089.01

August 2021

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LIST OF ABBREVIATIONS

ADWF	average dry weather flow
AMM	Avoidance and Minimization Measures
ANSI	American National Standards Institute
BACT	Best Available Control Technology
BMP	Best Management Practices
CAAQS	California ambient air quality standards
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CBC	California Building Code
CCGT	combined cycle gas turbine
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CHP Calculator	Combined Heat and Power Energy and Emissions Savings Calculator
CHP	combined heat and power
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNG	compressed natural gas
CO	carbon monoxide
CO_2	carbon dioxide
Cogen	cogeneration
CPP	Cosumnes Power Plant
CVFA	Central Valley Financing Authority
dB	decibels
dbh	diameter at breast height
diesel PM	Particulate matter emitted from diesel construction equipment
DOC	California Department of Conservation
DTSC	California Department of Toxic Substances Control
EIR	Environmental Impact Report

EPA	U.S. Environmental Protection Agency
FHSZ	fire hazard severity zone
FMMP	Farmland Mapping and Monitoring Program
GHG	greenhouse gas
HMP	hazardous materials plan
I-5	Interstate 5
in/sec	inches per second
IPaC	Information for Planning and Consultation
IS	initial study
IS/Proposed MND	Initial Study/Proposed Mitigated Negative Declaration
lb/day	pounds per day
LDL	Larson Davis Laboratories
L_{dn}	Day-Night Noise Level
L_{eq}	Equivalent Continuous Sound Level
L_{max}	Maximum Noise Level
L_{min}	Minimum Noise Level
LRA	Local Responsibility Area
MBTA	Migratory Bird Treaty Act
mgd	million gallons per day
MW	megawatts
MWh	megawatt hours
NAAQS	national ambient air quality standards
NCIC	North Central Information Center
NO_2	nitrogen dioxide
NO_X	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
PM_{10}	respirable particulate matter with an aerodynamic diameter less than or equal to 10 microns
$PM_{2.5}$	fine particulate matter with an aerodynamic diameter less than or equal to 2.5 microns in diameter
ppm	parts per million
PPV	peak particle velocity
project	Regional San BioGeneration Facility Project
Regional San	Sacramento Regional County Sanitation District
RFP	Request for Proposal
RFQ	Request for Qualifications
RMS	root-mean-square

ROG	reactive organic gases
RPS	Renewables Portfolio Standard
RWQCB	Regional Water Quality Control Board
SAFCA	Sacramento Area Flood Control Agency
SB	Senate Bill
SLCP	short-lived climate pollutant
SLF	Sacred Lands File
SLM	sound level meter
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMUD	Sacramento Municipal Utility District
SO_2	sulfur dioxide
SPL	sound pressure level
SR	State Route
SRWTP	Sacramento Regional Wastewater Treatment Plant
SSHCP	South Sacramento Habitat Conservation Plan
SVAB	Sacramento Valley Air Basin
SWPPP	stormwater pollution prevention plan
TAC	toxic air contaminants
T-BACT	Toxic Best Available Control Technology
TMP	traffic management plan
UAIC	United Auburn Indian Community
UCMP	University of California Berkeley Museum of Paleontology
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
VdB	decibel notation

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1 PROJECT DESCRIPTION

1.1 INTRODUCTION

The Sacramento Regional County Sanitation District, Regional San, is proposing to construct and operate a biogas cogeneration facility (proposed project) within the existing Sacramento Regional Wastewater Treatment Plant (SRWTP) site. The proposed project would beneficially use biogas produced by the SRWTP's anaerobic digesters to generate heat and power.

1.2 PROJECT BACKGROUND

Regional San owns and operates a regional wastewater conveyance system (sewer lines and interceptors) and the SRWTP, and provides wastewater conveyance and treatment services to residential, industrial, and commercial customers throughout unincorporated Sacramento County; the cities of Citrus Heights, Elk Grove, Folsom, Rancho Cordova, Sacramento, and West Sacramento; and the communities of Courtland and Walnut Grove (Figure 1-1). The wastewater treatment process generates a variety of solids including primary sludge, grit, screenings (i.e., large debris), return activated sludge, and waste activated sludge. Regional San feeds blended primary sludge and thickened waste activated sludge to six primary anaerobic digesters and two blending digesters. Anaerobic digestion produces biogas, which is a methane-rich, renewable byproduct of the solids digestion process that can be used as a renewable fuel.

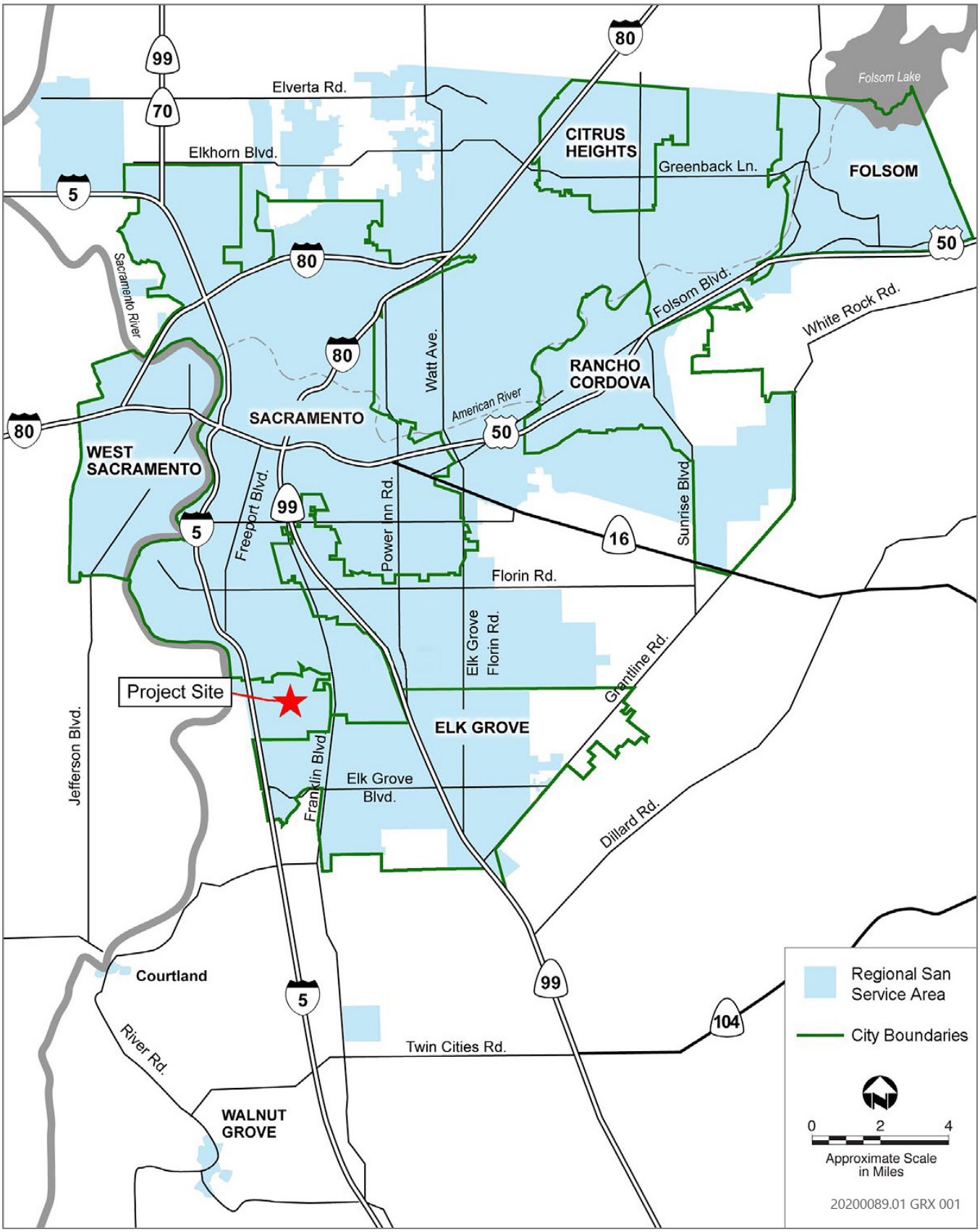
Regional San has been in partnership with Sacramento Municipal Utility District (SMUD) through the Central Valley Financing Authority (CVFA) for nearly 30 years. Under this partnership, Regional San delivers renewable biogas generated by the SRWTP wastewater treatment process to SMUD in exchange for reliable utility and backup power, steam for digester heating, and revenue according to the terms of the existing Commodity Agreement. The original driver for the agreement was the co-location of SMUD's Carson Cogeneration (Cogen) Plant on the SRWTP site, where biogas helped fuel the Carson Cogen plant, and steam from the Carson Cogen plant could be returned for digester heating. (More detail is provided below.) With the Commodity Agreement expiring in 2025, Regional San is pursuing the proposed project described below as an alternative use for its biogas.

1.3 PROJECT LOCATION

The SRWTP is located at 8521 Laguna Station Road in Elk Grove and is surrounded by approximately 2,150 acres of open space owned by Regional San and known as the Bufferlands (Figure 1-1). The entire SRWTP site and Bufferlands are located north of Laguna Boulevard and lie predominantly within the unincorporated area of Sacramento County, between Franklin Boulevard and I-5. The project site would be located within the SRWTP site in a previously disturbed area north of the existing digesters. The site is bordered by Digesters Way/Oregon Trail to the south and Septage Way to the north. The staging area would be immediately east of the project site (Figure 1-2).

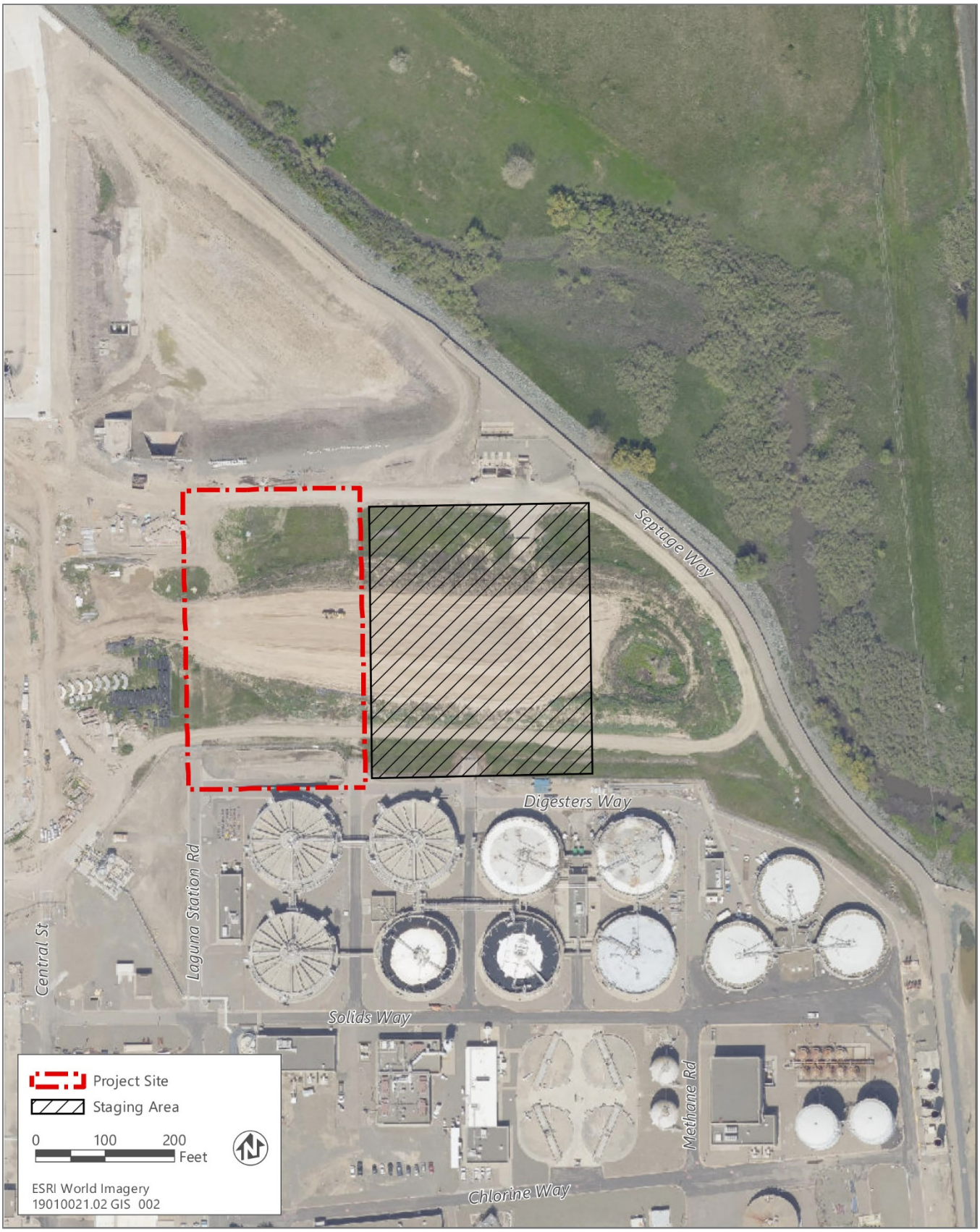
1.4 EXISTING FACILITIES

Wastewater is collected from customers' homes and businesses via sewer collection pipes operated by one of four local sewer agencies. These pipes connect to a network of 169 miles of interceptor pipelines, which convey the wastewater to the SRWTP. The SRWTP currently provides secondary treatment of wastewater through operation of a combined system consisting of bar screens, grit tanks, primary tanks, secondary sedimentation tanks, disinfection using sodium hypochlorite, and de-chlorination using sodium bisulfite. The SRWTP is permitted to discharge an average dry weather flow of 181 million gallons per day (mgd) to the Sacramento River. Actual discharges vary seasonally and range from 120 to 400 mgd, with higher wet weather flows occurring in rainy periods (RMC 2015). (These higher wet weather flows are allowable within the dry weather permitted flow of 181 mgd.) The SRWTP is undergoing a major upgrade to its treatment processes and will produce tertiary treated wastewater when completed by 2023. The current average biogas production rate is approximately 1,800 standard cubic feet per minute (Regional San 2020).



Source: adapted by Ascent Environmental in 2020

Figure 1-1 Service Areas



Source: adapted by Ascent Environmental in 2020

Figure 1-2 Project Site and Staging Area

In addition to the facilities associated with the wastewater treatment process at the SRWTP, auxiliary systems are also in place and include: the Carson Cogen Plant, Biogas Enhancement Facility, odor control systems, corrective action program, water reclamation facility, fire protection system, and electricity and energy. Regional San's biogas is currently conveyed and treated in the existing Gas Management System. A Gas Management System Improvements project is currently under construction and will improve the reliability and control of the existing flares and waste gas burners. The existing Gas Management System compressors do not have sufficient capacity to deliver full biogas production to SMUD. A single compressor cannot deliver the required flow, and two compressors operating in parallel do not have sufficient capacity without causing a surge. As a result, a portion of the biogas is currently flared.

Treated biogas resulting from digestion of solids at the SRWTP is captured and diverted to the Carson Cogen Plant or is injected into a SMUD-owned, natural gas utility pipeline that delivers the combined gas to the Cosumnes Power Plant (CPP) located at Rancho Seco, approximately 20 miles southeast of the SRWTP. Since 1995, the Carson Cogen Plant has used SRWTP biogas in a duct burner that, along with natural gas turbines, generates electricity. Waste heat from the gas turbine creates steam for use in a steam turbine to generate electricity. Together, two generators generate up to 100 megawatts (MW) of power for local residential and industrial use. Power from the Carson Cogen Plant is typically delivered to the local power grid, but it can also be sent directly to the SRWTP. In addition, the Carson Cogen Plant serves as an emergency backup power supply system to keep the SRWTP in operation if the local power grid were to fail.

Beginning in fall 2012, instead of using biogas only at the Carson Cogen Plant, SMUD began to compress the biogas for use at CPP. The CPP uses the combination of natural gas and SRWTP biogas as fuel for turbines and produces up to 600 MW of power. Presently, the SRWTP biogas can be used at either the Carson Cogen Plant or the CPP.

Regional San also operates a 40,000-gallon-per-day fats, oil, and grease receiving and handling Biogas Enhancement Facility. The organic waste received at this facility is screened and pumped to the digesters where it is co-digested with other wastewater solids. The additional biogas generation is used by SMUD to generate renewable energy at the CPP or the Carson Cogen Plant. In addition, the facility provides a new local disposal location option for commercial haulers of fats, oil, and grease.

In addition to the Carson Cogen Plant, electrical power to the SRWTP is supplied by the SMUD electrical grid. SMUD has existing 69 kilovolt facilities on the project site and along East Access Road. SMUD also operates the nearby Pocket and Franklin electrical substations, complexes of transformers, and switches located to the north and south, respectively. These two major substations are supplied with 230,000 volts (230 kilovolts) from the larger electrical grid and, along with the Carson Cogen Plant, supply electricity to the SRWTP. On average, the SRWTP's average electricity demand is 12 MW; however, the plant demand will further increase due to the treatment process enhancements currently under construction.

1.5 PROJECT OBJECTIVES

The goal of the proposed project is to design and construct a biogas cogeneration facility before the Commodity Agreement expiration in October 2025 that meets the following objectives:

- make the best use of biogas (highest economic and environmental value);
- minimize operations and maintenance costs;
- integrate into the existing SRWTP facilities;
- reduce emissions compared to existing conditions; and
- protect the environment through responsible stewardship of natural resources.

1.6 DESIGN-BUILD METHOD

The proposed project would be designed and constructed via a fixed-price design-build method of project delivery. Regional San's goal in using this method is to provide a shorter elapsed time from project initiation to project operation; provide overall cost savings; provide a more efficient construction process; and promote higher quality and more innovative design solutions. With the design-build method, performance criteria are established for the facility's design characteristics, such as:

- minimum efficiency, uptime and kilowatt-hour generation performance requirements;
- maximum height and square footage; and
- minimum parameters to meet maintenance and functionality requirements.

Many of the project characteristics provided in the following project description would be included in the performance criteria.

The analysis in this initial study (IS) and the environmental impact report (EIR) will be based on the performance criteria for the proposed project. This is the typical stage at which CEQA review is conducted in a design-build process, in part, so that the future RFP can include any impact avoidance and mitigation measures that arise out of the CEQA review process. This approach places the CEQA process before completion of a final project design. However, the performance criteria are sufficient to support the IS and EIR impact analyses. Where the performance criteria provide a maximum limit to a project characteristic, such as the building not exceeding 36 feet in height, the IS and, subsequently, the EIR will assume the project will meet that maximum limit. If, ultimately, the selected design-build team can achieve all necessary criteria with a shorter building, the IS and EIR will still have evaluated the impacts of that design. If the performance criteria identify a range for a particular project characteristic, the IS and EIR impact analyses will generally consider the higher value in the range. Again, if the ultimate project design meets the lower portion of the range, the IS and EIR will have evaluated the impacts of that design.

1.7 PROJECT FACILITIES

The proposed project would include construction and operation of a new cogeneration engine system to use biogas onsite to produce electricity and heat for the SRWTP. The biogas cogeneration system would have several major interfaces with existing SRWTP systems including the following:

- gas management system,
- digester heating system,
- electrical power distribution system,
- plant computer control system, and
- site utilities.

The proposed project would include the following components:

- up to six internal combustion engine generators,
- engine exhaust treatment (oxidation catalyst and selective catalytic reduction),
- a biogas conditioning system (as part of the gas management system),
- hot water boiler (standby), and
- a new building.

Implementation of the project would also result in the curtailment of multiple stationary sources operated by Regional San under existing conditions, including digester gas flaring by SRWTP's enclosed flares (ground flares) and waste gas burners, as well as three boilers used to generate steam. The project would eliminate surplus flaring related to maintenance and unforeseeable overpressure events because this project would allow Regional San to operate its

own digester gas conditioning system and schedule and stagger maintenance of the Combined Heat and Power (CHP) engines such that downtime would be minimized. Also, once the project is operational, the three boilers currently operated by Regional San, would no longer be required and would be decommissioned, thereby no longer generating emissions.

1.7.1 Combustion Engine Generators

The proposed combustion engine generators would produce between 10 and 15 MW of power, which would offset utility power purchases. In addition, one engine would serve as a standby. The project would include between four and six engine generators depending on the engine size selected. However, regardless of the number of engines selected, the combined power generation would not exceed 15 MW. Options for number of engines and engine sizes are shown in Table 1-1.

Table 1-1 Combustion Engine Generator Options

Engine Size	Number of Units (including 1 Standby)	Firm Capacity	Total Capacity
2 MW	5 + 1	10 MW	12 MW
3 MW	4 + 1	12 MW	15 MW
3.5 MW	3 + 1	10.5 MW	14 MW

The new engines would be required to meet the best-available control technology (BACT) for all criteria pollutants, as required by the Sacramento Metropolitan Air Quality Management District (SMAQMD) Rule 201, Section 301. BACT is generally determined at the time the permit application is deemed complete and the SMAQMD does not accept permit applications for projects until after they complete the CEQA review process.

Annual electricity generated by the engines is estimated to be between 74,460 megawatt hours (MWh) and 105,000 MWh per year.

The engine system would cogenerate power and heat. Heat recovered from engine exhaust and jacket water (water that flows through the engine to keep it from overheating) would be used for process and space heating at the SRWTP. The cogeneration system would have sufficient capacity to meet the SRWTP's average heat demand of 20 million British Thermal Units per hour (MMBtu/hr).

1.7.2 Engine Exhaust Treatment

Exhaust from the engines would be treated by oxidation catalyst and selective catalytic reduction to reduce carbon monoxide and NO_x, respectively. The selective catalytic reduction would use urea injection.

1.7.3 Biogas Conditioning System

The biogas conditioning system would be part of the larger gas management system and would remove hydrogen sulfide, siloxanes, and water from the biogas using a media that would be disposed of at an approved landfill. This system would consist of the following individual components:

- hydrogen sulfide removal vessels (granular iron oxide),
- cooling heat exchangers,
- blowers,
- glycol chillers and pumps,
- siloxane removal vessels, and
- particle filters.

1.7.4 Hot Water Boiler

One hot water boiler would be installed as part of the project to produce hot water needed to operate the digesters at optimal temperature. The boiler would be located within the new building or adjacent to the building under a canopy and would produce 19.9 MMBtu/hr of heat. The boiler would serve as a back-up heat source to the cogeneration engines.

1.7.5 Engine and Boiler Building

The project would include one new building constructed within the project site immediately north of the existing digesters. The building would house the engines, electrical equipment, a control room, and a restroom. The building would be a maximum of 36 feet tall and is expected to be approximately 15,000 square feet.

1.8 PROJECT CONSTRUCTION

Construction of the project would last between 18 and 24 months and is anticipated to begin in 2022. Typical construction activities would include earthwork such as grading, excavation, trenching, backfilling, hauling, and compaction. Additionally, underground piping and utilities would be constructed. Paving, lighting, drainage, and reinforced structures including the new building would be constructed. Delivery of construction materials and supplies to the site would be required. In total, up to 5.6 acres would be disturbed by project construction and staging. A small amount of fill may need to be removed from the project site and would be disposed of within the SWRTP site at a location already used for operations and not containing any biological resources habitat. Construction equipment would include excavators, dozers, compactors, graders, and backhoes.

Typical work hours would be Monday through Friday from 7:00 a.m. to 7:00 p.m. (construction noise is exempt from noise ordinances between 6:00 a.m. and 8:00 p.m. on weekdays within Sacramento County). No nighttime work is anticipated. Equipment, material, and vehicle staging would be accommodated at the SRWTP immediately east of the project site (Figure 1-2).

Ingress and egress for construction traffic would be via Laguna Boulevard to Dwight Road. Then to Central Street, which connects to Septage Way.

1.8.1 Environmental Commitments

The following environmental commitment measures will be implemented by Regional San during project construction activities.

- EC-1: Develop and implement a Worker Environmental Awareness Program.

  Biological Resources

  Prior to construction activities, a qualified biologist shall develop training materials for all construction personnel who will have the potential to encounter any biological resources. The training materials will cover the following: 1) a review of the project boundaries; 2) all special-status species that may be present, their habitat, and identification; 3) the specific mitigation measures that will be incorporated into the construction effort; 4) the general provisions and protections afforded by USFWS and CDFW; and 5) the proper procedures if a special-status species is encountered within the project area. An instructional pamphlet will be included with the worker environmental awareness program (WEAP). At the completion of the WEAP, the qualified biologist will identify a responsible party on-site (generally the project foreman) who will ensure that new construction members receive and review the pamphlet information. This responsible party will also be the primary point of contact if special-status species are found on site and the presence of the qualified biologist is required.

Cultural Resources

Prior to construction activities, a qualified archaeologist shall develop a construction worker tribal cultural resources awareness brochure for all construction personnel and supervisors who will have the potential to encounter any Tribal and cultural resources. The brochure will be developed in coordination with representatives from Native American Tribes culturally affiliated with the project site. The topics to be addressed in the Worker Environmental Awareness Program will include, at a minimum:

- types of Tribal and cultural resources expected at the project site;
- types of evidence that indicates Tribal or cultural resources might be present (e.g., ceramic shards, trash scatters, lithic scatters);
- what to do if a worker encounters a possible resource;
- what to do if a worker encounters bones or possible bones; and
- penalties for removing or intentionally disturbing Tribal and cultural resources, such as those identified in the Archeological Resources Protection Act.

Paleontological Resources

In addition, a qualified paleontologist will develop training materials that will alert all construction personnel and supervisors who will have the potential to encounter any fossils. The training materials will describe the appearance and types of fossils likely to be seen during construction. Construction personnel will be trained about the proper notification procedures should fossils be encountered.

If paleontological resources are discovered during earthmoving activities, the construction contractor will immediately halt operations within 100 feet of the find and notify Regional San. Regional San will retain a qualified paleontologist for identification and salvage of fossils so that construction delays can be minimized. If large specimens are discovered, the paleontologist shall have the authority to halt or divert grading and construction equipment while the finds are removed. The paleontologist shall be responsible for implementing all tasks summarized below.

- In the event of discovery, salvage of unearthed fossil remains, typically involving simple excavation of the exposed specimen but possibly also plaster-jacketing of large and/or fragile specimens, or more elaborate quarry excavations of richly fossiliferous deposits.
- Recovery or stratigraphic and geologic data to provide a context for the recovered fossil remains, typically including description of lithologies of fossil-bearing strata, measurement and description of the overall stratigraphic section, and photographic documentation of the geologic setting.
- Laboratory preparation (cleaning and repair) of collected fossil remains to a point of curation, generally involving removal of enclosing rock material, stabilization of fragile specimens (using glues and other hardeners), and repair of broken specimens.
- Cataloging and identification of prepared fossil remains, typically involving scientific identification of specimens, inventory of specimens, assignment of catalog numbers, and entry of data into an inventory database.
- Preparation of a final report summarizing the field and laboratory methods used, the stratigraphic units inspected, the types of fossils recovered, and the significance of the curated collection.

- EC-2: Discovery of Unknown Contaminated Soils During Construction. If, during construction, currently unknown contaminated soils are discovered (discolored soils, odorous, other indications), construction within the area shall be halted, the extent and type of contamination shall be characterized, and a clean-up plan shall be prepared and executed. The plan shall require remediation of contaminated soils. Remediation can include in-situ treatment, disposal at an approved landfill, or other disposal methods, as approved. Construction can proceed within the subject area upon approval of and in accordance with the plan.

- EC-3: Traffic Management Plan. Implementation of the project will include a traffic management plan (TMP) that would minimize traffic congestion and conflicts as a result of construction activities. The TMP will be approved by the County of Sacramento prior to construction and complied with at all times during construction of the project. The TMP will be prepared by a qualified transportation engineer and would include but not be limited to the following measures:
  - Emergency services access to and surrounding the project site shall be maintained at all times for the duration of construction activities. Local emergency service providers shall be informed of proposed construction activities and identified haul routes.
  - Identify procedures for construction area evacuation in the case of an emergency declared by county or other local authorities.
  - Roadside safety protocols shall be complied with to reduce the risk of accident.
  - Use flaggers to direct traffic, as necessary.

1.9 OPERATIONS

The project is expected to become operational in 2024. Operation of the project would not change the operating hours at the existing SRWTP. Currently, the plant operates continuously 24 hours per day, every day. Routine maintenance would occur for all new facilities, and would generally include preventative maintenance, daily, weekly, monthly, quarterly, and annual inspections and adjustments. Maintenance would occur periodically or annually depending on the specific facility and would be similar to existing maintenance. Operation of the project would require up to 10 additional full-time employees to operate and maintain the new facilities. Operation of the project would result in a small increase in long-term vehicle trips associated with the 10 new employees and increased maintenance activity. Operations-related vehicle trips would use the same access route as identified above for construction (Franklin Boulevard to Sims Road to Laguna Station Road to Septage Way).

1.10 REQUIRED ACTIONS

The project would require an Authority to Construct Permit (for devices that emit air pollutants) and Permit to Operate from SMAQMD.

It is expected that the project would not require a National Pollutant Discharge Elimination System construction stormwater permit (Notice of Intent to proceed under General Construction Permit) for disturbance of more than 1 acre administered by the State Water Resources Control Board because the project is within SRWTP's ring levee and existing process area. Stormwater Pollution Prevention would be subject to a Water Pollution Control Plan and runoff would be contained within the SRWTP.

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2 ENVIRONMENTAL CHECKLIST

PROJECT INFORMATION

1.	Project Title:	Regional San BioGeneration Facility Project
2.	Lead Agency Name and Address:	Sacramento Regional County Sanitation District, 10060 Goethe Road, Sacramento, CA 95827
3.	Contact Person and Phone Number:	Steve Nebozuk, (916) 876-6118
4.	Project Location:	Sacramento Regional Wastewater Treatment Plant, 8521 Laguna Station Road, Elk Grove, CA 95758
6.	General Plan Designation:	See Section 2.11, "Land Use and Planning" below.
7.	Zoning:	See Section 2.11, "Land Use and Planning" below.

8. Description of Project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.)

   See Chapter 1, "Project Description"

9.	Surrounding Land Uses and Setting: (Briefly describe the project's surroundings)	Land uses in the project vicinity include the Sacramento Regional Wastewater Treatment Plant facilities and the Bufferlands.
10.	Other public agencies whose approval is required: (e.g., permits, financing approval, or participation agreement)	Sacramento Metropolitan Air Quality Management District

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

    See Section 2.18, "Tribal Cultural Resources," below.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages. Where checked below, the topic with a potentially significant impact will be addressed in an environmental impact report.

- ☐ Aesthetics
- ☒ Biological Resources
- ☐ Geology / Soils
- ☐ Hydrology / Water Quality
- ☐ Noise
- ☐ Recreation
- ☐ Utilities / Service Systems
- ☐ Agriculture and Forest Resources
- ☒ Cultural Resources
- ☒ Greenhouse Gas Emissions
- ☐ Land Use / Planning
- ☐ Population / Housing
- ☐ Transportation
- ☐ Wildfire
- ☐ None
- ☒ Air Quality
- ☐ Energy
- ☐ Hazards / Hazardous Materials
- ☐ Mineral Resources
- ☐ Public Services
- ☒ Tribal Cultural Resources
- ☐ Mandatory Findings of Significance
- ☐ None with Mitigation Incorporated

DETERMINATION (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that the proposed project could not have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared.

☐ I find that although the proposed project COULD have a significant effect on the environment, there WILL NOT be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A **MITIGATED NEGATIVE DECLARATION** will be prepared.

☒ I find that the proposed project **MAY** have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required.

☐ I find that the proposed project **MAY** have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier **EIR** or **NEGATIVE DECLARATION** pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier **EIR** or **NEGATIVE DECLARATION**, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

DocuSigned by:
Dave Ocenosak
C33495AED79641B...

8/12/2021

Signature Date

Dave Ocenosak

Dave Ocenosak

Principal Engineer Architect

Principal Engineer

Sacramento Regional County Sanitation District

Agency

2.1 AESTHETICS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I. Aesthetics.				
Except as provided in Public Resources Code section 21099 (where aesthetic impacts shall not be considered significant for qualifying residential, mixed-use residential, and employment centers), would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

2.1.1 Environmental Setting

The project site and staging area are vacant land located within the core facility area that is occupied by the existing SRWTP facilities and surrounded by the Bufferlands (Figures 2.1-1 and 2.1-2). The topography within the project site and surrounding Bufferlands is generally flat with the only topographic variation created by levees and dirt mounds in spoils areas. The Bufferlands forms an open space buffer that is between 1,200 feet and 1 mile wide surrounding the existing SRWTP. The Bufferlands is characterized as high-quality habitat consisting of grasslands interspersed with creeks, vernal pools, and seasonal wetlands. As part of Regional San's Trail of Trees Project, more than 6,500 trees have been planted along the west side of Franklin Boulevard to screen views of the SRWTP from residential areas located on the east side of Franklin Boulevard.

The east side of the core facility area has the largest concentration of existing structures, with the less developed western half of the core facility area having scattered structures, roads, emergency storage basins, and solids storage basins. Structures on the site have an industrial appearance and consist of tanks of various sizes, concrete-construction and metal-construction buildings, conveyance pipes, below-ground and above ground tanks, pumps, and paved expanses. The majority of the core facility area is not landscaped, and vegetation consists of annual grasses and ruderal vegetation. The existing structures of the SRWTP are primarily visible from Franklin Boulevard to the east and Dwight Road to the southeast of the SRWTP.

There are no scenic vistas that provide views of the SRWTP site. The Sacramento River is located approximately 2 miles west of the project site, west of the Stone Lakes NWR and Interstate 5 (I-5). The nearest Officially Designated State Scenic Highway to the project site is State Route (SR) 160 (Caltrans 2019) from the Contra Costa County line to the southern city limit of the City of Sacramento. SR 160 runs parallel to the east side of the Sacramento River and is located 2 miles west of the project site. The Circulation Element designates all freeways within Sacramento County as scenic corridors. Scenic corridors extend 660 feet on each side of the right-of-way. These scenic corridors apply to I-5 in the vicinity of the project site; however, I-5 is 1.6 miles west of the project site.

Source: Ascent Environmental in 2020

Views from Project Site Looking South toward Digesters

Source: Ascent Environmental in 2020

Views Looking West at the Project Site and SRWTP Facilities in the Background

Figure 2.1-1 Representative Photographs

Source: Ascent Environmental in 2020

Views of Project Site Looking South from Septage Way

Figure 2.1-2 Representative Photograph

Views of the project site and staging area are of a previously disturbed area with ruderal grasses. Five cottonwood trees are located east of the proposed staging area. Neither the project site nor staging area are visible from any public viewpoints or surrounding roadways. In addition, the project site and staging area do not contain any scenic vistas.

The existing SRWTP has lighting for security and work area safety. The surrounding Bufferlands is unlit and the lighting on the SRWTP facilities is at a distance from residential areas. Under existing conditions, SRWTP lighting is visible from residential areas to the east and south of the plant, but is screened by landscaping along the roadways, and by vegetation growing in the Bufferlands, east and south of the SRWTP. The railroad berm that runs along the east side of the SRWTP partially blocks views of some of the lighting from Dwight Road. While direct views of the SRWTP lights are blocked by fencing along the west side of storage basins on the west side of the SRWTP, minor skyglow effects from the SRWTP can be seen from I-5 to the west.

2.1.2 Discussion

a) Have a substantial adverse effect on a scenic vista?

No impact. The project site and staging area are currently vacant and located within the SRWTP site. The project would change views of the site from vacant land to a biogeneration facility. However, the project site and staging area are not visible from any public viewpoints and there are no scenic vistas in the project vicinity or with views of the project site. Because the project would not be visible from a scenic vista and the changes in views would be consistent with surrounding development, the project would have **no impact** on a scenic vista.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No impact. The nearest Officially Designated State Scenic Highway is SR 160, located approximately 2 miles west of the project site. I-5 is designated by Sacramento County as a scenic corridor and is located approximately 1.6 miles west of the project site. However, the project site and staging area are not located within the viewshed of SR 160 or I-5. Because there are no designated state scenic highways with views of the project site and the project would not require tree removal, the project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. The project would have **no impact** on a state scenic highway.

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Less-than-significant impact. The project site and staging area would be within the core facility area of the SRWTP. The east side of the core facility area has the largest concentration of existing structures, with the less developed western half of the core facility area having scattered structures, roads, emergency storage basins, and solids storage basins. During project construction, views in the area would be modified as a result of the temporary presence of construction and equipment and activities. However, the appearance of construction equipment and activities would be temporary, consistent with the developed nature surrounding the project site, and would only be visible to Regional San employees. Once construction activities are complete, views of the project site would change from vacant land to development associated with the new biogeneration facility.

Views of the new facility would primarily include a new building that would house the new biogeneration system. None of the project facilities would be visible to motorists, pedestrians, and bicyclists from public viewpoints. The new buildings would be consistent with the existing buildings on-site and the existing SRWTP facilities. Construction of the project would be consistent with the surrounding visual character of existing SRWTP facilities and would not change views from any public viewpoints. This impact would be **less than significant**.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

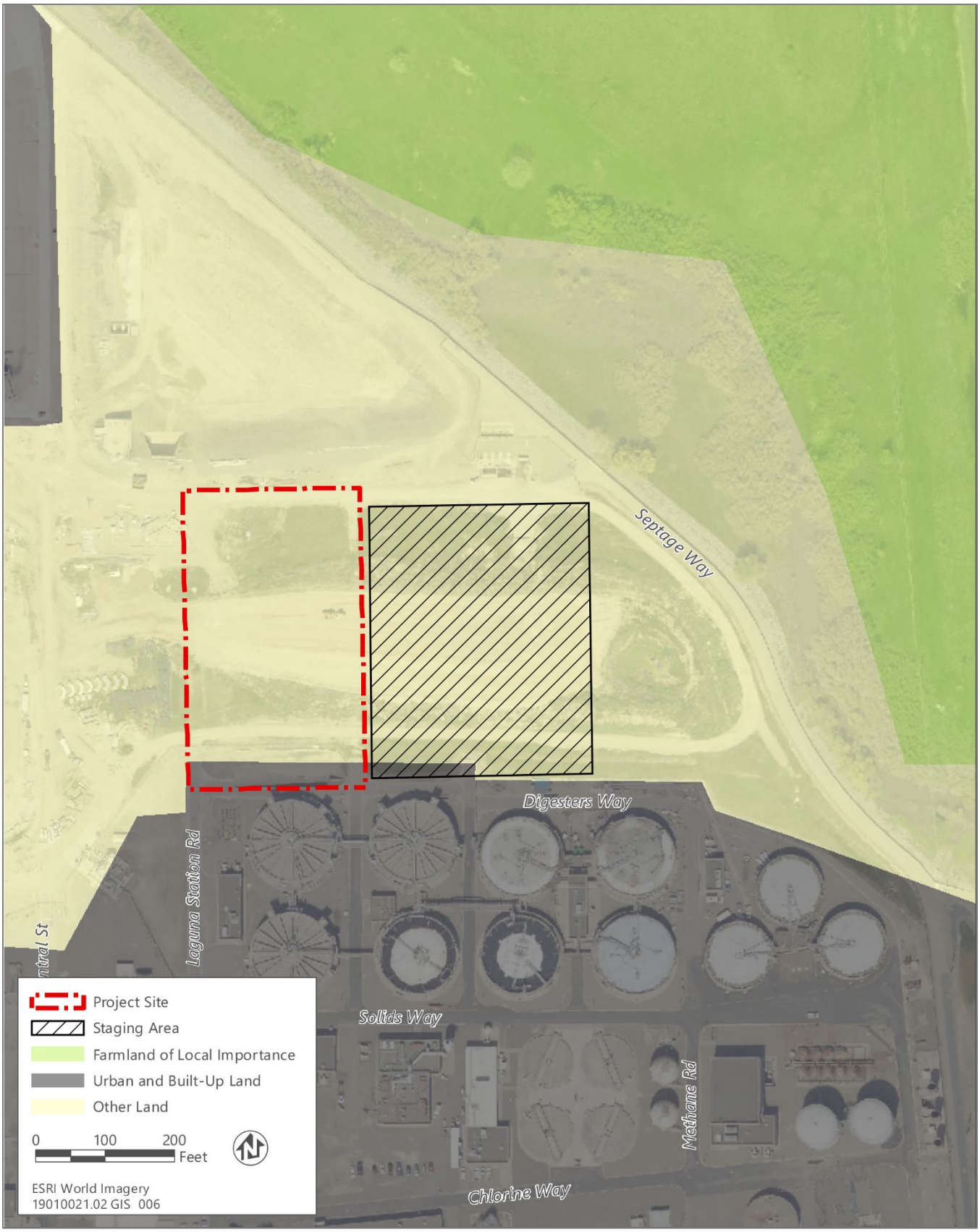
Less-than-significant impact. Construction-related activities would occur during daylight hours from 7:00 a.m. through 7:00 p.m. and would not require nighttime lighting. Construction equipment is unlikely to have reflective surfaces and would not be a substantial source of glare in the area. The project would mainly be constructed of metal and concrete and would not be constructed with materials that would create substantial glare. The project site and staging area are located in an industrial setting. The existing SRWTP has lighting for security and work area safety. The project would result in a minor sources of new exterior security lighting on the building, which would be consistent with lighting from surrounding SRWTP facilities. The project would not result in a new source of substantial light or glare that would adversely affect day or nighttime views in the area. Therefore, the project would have a **less-than-significant** impact related to light and glare.

2.2 AGRICULTURE AND FOREST RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
II. Agriculture and Forest Resources.				
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997, as updated) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.				
Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

2.2.1 Environmental Setting

Farmlands are mapped by the State of California Department of Conservation (DOC) under the Farmland Mapping and Monitoring Program (FMMP). Under the FMMP, land is delineated into the following eight categories: Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, Grazing Land, Urban and Built-Up Land, Other Land, and Water. The project site and staging area are defined as Other Land and Urban and Built-Up Land by the DOC and therefore are not designated as Important Farmland (Figure 2.2-1). The area northeast of the project site is designated as Farmland of Local Importance and the area to the south is Urban and Built-Up Land. The project site and staging area are within the SRWTP site in a previously disturbed area north of the digesters. Surrounding land uses include SRWTP facilities, previously disturbed areas within the SRWTP property, and the Bufferlands. Although the area northeast of the project site is designated as Farmland of Local Importance, there has not been active agriculture in the project vicinity for more than 10 years.



Source: Data downloaded from FMMP in 2020 and adapted by Ascent Environmental in 2020

Figure 2.2-1 Important Farmland

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, enables local governments to enter into contracts with private landowners for the purpose of preserving agriculture and restricting unnecessary conversion to urban uses. Under the contract, landowners received reduced property tax assessments based on the property's value for farming and open space as opposed to full market value. Based on Sacramento County's database on Williamson Act lands, the project site and surrounding lands are not under Williamson Act contract (Sacramento County 2020a).

In addition, there are no timberlands or forest land in the project vicinity, and the area is not zoned for forest land or forestry resources.

2.2.2 Discussion

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No impact. The project site and staging area are not considered Prime Farmland, Unique Farmland, or Farmland of Statewide Importance according to the FMMP. Land northeast of the project site is designated as Farmland of Local Importance; however, this land is within the SRWTP property and is not in agricultural production. In addition, this land would not be affected by the project. Implementation of the project would not convert farmland to non-agricultural uses. There would be **no impact**.

b) Conflict with existing zoning for agricultural use or a Williamson Act contract?

No impact. The project site and surrounding lands are not subject to Williamson Act contract. Therefore, implementation of the project would not conflict with existing zoning for agricultural use or a Williamson Act contract. **No impact** would occur.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

No impact. The existing zoning within the project vicinity is not for forest land, timberland, or Timberland Production. The project would include construction of a biogeneration facility on disturbed land within the SRWTP site and would not cause rezoning of forest land. There would be **no impact**.

d) Result in the loss of forest land or conversion of forest land to non-forest use?

No impact. The project facilities would be located within the project site; therefore, the trees located east of the staging area would remain in place. In addition, the site does not contain any riparian or oak woodland forest and is not considered forest land. Therefore, the project would not convert forest land to non-forest uses. There would be **no impact**.

e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

No impact. No forest or agricultural resources are located within or adjacent to the project site. As discussed above in items a) through d), the project would not involve changes in the existing environment which, because of their location or nature, could result in conversion of forest land or agricultural land. Therefore, **no impact** would occur.

2.3 AIR QUALITY

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
III. Air Quality.				
Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied on to make the following determinations.				
Are significance criteria established by the applicable air district available to rely on for significance determinations?	☒ Yes		☐ No	
Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☒	☐	☐	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☒	☐	☐	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☒	☐	☐	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

2.3.1 Environmental Setting

The U.S. Environmental Protection Agency (EPA) has established national ambient air quality standards (NAAQS) for six criteria air pollutants that are known to be harmful to human health and the environment: carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter (which is categorized into respirable particulate matter with an aerodynamic diameter less than or equal to 10 microns [PM_{10}] and fine particulate matter with an aerodynamic diameter less than or equal to 2.5 microns in diameter [$PM_{2.5}$]), nitrogen dioxide, and sulfur dioxide. The State of California has established the California ambient air quality standards (CAAQS) for these six pollutants, as well as for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. NAAQS and CAAQS are scientifically substantiated, numerical concentrations of criteria air pollutants established to protect the public from adverse health impacts caused by exposure to air pollution. A brief description of the criteria air pollutants and their effects on health is provided in Table 2.3-1.

The project site is within the SRWTP site, which is in unincorporated Sacramento County adjacent to Elk Grove and within the Sacramento Valley Air Basin (SVAB). The SVAB is bounded on the north by the North East Plateau Air Basin, on the south by the San Joaquin Valley Air Basin, on the east by the southern portion of the Cascade Range and the northern portion of the Sierra Nevada, and on the west by the Coast Ranges. Sacramento County is currently designated as nonattainment with respect to the NAAQS and CAAQS for ozone, the NAAQS for $PM_{2.5}$, and the CAAQS for PM_{10}. The region is designated as attainment or unclassified with respect to the NAAQS and CAAQS for all other pollutants (CARB 2019).

The Sacramento Metropolitan Air Quality Management District (SMAQMD) is the local agency responsible for air quality planning in Sacramento County. SMAQMD develops and implements an air quality plan for attaining the NAAQS and CAAQS that was last updated and approved by the SMAQMD Board and the California Air Resources Board (CARB) in 2017. There are currently no plans established for achieving the NAAQS for $PM_{2.5}$ or the CAAQS for PM_{10}. SMAQMD develops regulations and emission reduction programs to control emissions of criteria air pollutants,

ozone precursors (oxides of nitrogen [NO_X] and reactive organic gases [ROG]), toxic air contaminants (TACs), and odors within its jurisdiction.

Table 2.3-1 Criteria Air Pollutants

Pollutant	Sources	Effects
Ozone	Ozone is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving ROG, also sometimes referred to as volatile organic compounds by some regulating agencies, and NO_X. The main sources of ROG and NO_X, often referred to as ozone precursors, are products of combustion processes (including motor vehicle engines) and the evaporation of solvents, paints, and fuels.	Ozone causes eye irritation, airway constriction, and shortness of breath and can aggravate existing respiratory diseases, such as asthma, bronchitis, and emphysema.
Carbon monoxide	Carbon monoxide (CO) is usually formed as the result of the incomplete combustion of fuels. The single largest source of CO is motor vehicle engines; the highest emissions occur during low travel speeds, stop-and-go driving, cold starts, and hard acceleration.	Exposure to high concentrations of CO reduces the oxygen-carrying capacity of the blood and can cause headaches, nausea, dizziness, and fatigue; impair central nervous system function; and induce angina (chest pain) in persons with serious heart disease. Very high levels of CO can be fatal.
Particulate matter	Some sources of particulate matter, such as wood burning in fireplaces, demolition, and construction activities, are more local in nature, while others, such as vehicular traffic, have a more regional effect.	Scientific studies have suggested links between fine particulate matter and numerous health problems, including asthma, bronchitis, and acute and chronic respiratory symptoms, such as shortness of breath and painful breathing. Recent studies have shown an association between morbidity and mortality and daily concentrations of particulate matter in the air.
Nitrogen dioxide	Nitrogen dioxide (NO_2) is a reddish-brown gas that is a byproduct of combustion processes. Automobiles and industrial operations are the main sources of NO_2.	Aside from its contribution to ozone formation, NO_2 can increase the risk of acute and chronic respiratory disease and reduce visibility.
Sulfur dioxide	Sulfur dioxide (SO_2) is a combustion product of sulfur or sulfur-containing fuels, such as coal and diesel.	SO_2 is also a precursor to the formation of particulate matter, atmospheric sulfate, and atmospheric sulfuric acid formation that could precipitate downwind as acid rain.
Lead	Leaded gasoline, lead-based paint, smelters (metal refineries), and the manufacture of lead storage batteries have been the primary sources of lead released into the atmosphere, with lead levels in the air decreasing substantially since leaded gasoline was eliminated in the United States.	Lead has a range of adverse neurotoxic health effects.

Notes: CO = carbon monoxide; NO_2 = nitrogen dioxide; NO_X = nitrogen oxides; ROG = reactive organic gases; SO_2 = sulfur dioxide.
Source: EPA 2018

SMAQMD published the *Guide to Air Quality Assessment in Sacramento County,* which was last updated in April 2020 and provides guidance to lead agencies preparing air quality impact analyses in CEQA documents (SMAQMD 2020). This guide includes SMAQMD-recommended thresholds of significance for evaluation of air quality impacts of projects in Sacramento County, including significance criteria that are tied to achieving or maintaining the attainment of the NAAQS and CAAQS.

SENSITIVE RECEPTORS

Sensitive receptors are generally considered to include those land uses where exposure to pollutants could result in health-related risks to sensitive individuals, such as children or the elderly. Residential dwellings, schools, hospitals, playgrounds, and similar facilities are of primary concern because of the presence of individuals particularly sensitive to pollutants and/or the potential for increased and prolonged exposure of individuals to pollutants.

The SRWTP facility where the project site is located is in a rural area of Sacramento county. There are no residential land uses, schools, or other sensitive receptors adjacent to the project site. The nearest residential area lies east of Franklin Boulevard, which is approximately 4,740 feet away.

2.3.2 Discussion

a) Conflict with or obstruct implementation of the applicable air quality plan?

Potentially significant impact. As stated in Chapter 1, "Project Description," construction of the project is anticipated to last between 18 and 24 months. Project construction would result in temporary emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ associated with the use of off-road equipment, haul trucks delivering equipment and materials, and worker commute trips. Fugitive PM_{10} and $PM_{2.5}$ dust emissions would be associated primarily with site preparation and earthwork and vary as a function of soil silt content, soil moisture, wind speed, acreage of disturbance, and travel by off-road equipment and delivery trucks on unpaved surfaces. Exhaust from off-road equipment, haul trucks, and construction worker vehicles would also contain PM_{10} and $PM_{2.5}$. Emissions of ozone precursors, ROG and NO_X, would primarily be associated with construction equipment and on-road mobile exhaust. Construction activities associated with the project would likely require the use of equipment such as excavators, graders, dozers, backhoes, trenchers, forklifts, compactors, graders, welding machines, haul trucks, cement trucks, and paving equipment. The project's operational emissions would include criteria air pollutants and precursors emitted by the new biogeneration facility that would use biogas from the SRWTP digesters and natural gas to generate electricity, and by the additional worker commute trips to and from the project site.

Project construction and operation would result in emissions of criteria air pollutants and precursors that have the potential to exceed thresholds adopted by SMAQMD. Therefore, the project has the potential to conflict with or obstruct implementation air quality planning efforts in the region. This impact would be **potentially significant** and this issue will be analyzed further in the EIR.

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Potentially significant impact. As described in Section 2.3.1, "Environmental Setting," Sacramento County is designated as nonattainment with respect to the NAAQS for PM2.5 and CAAQS for PM10. As discussed under item a) above, construction of the project would result in temporary emissions of ozone precursors, as well as PM10 and PM2.5. Ozone is the result of cumulative emissions from numerous sources that can be inside or outside the region. Ozone is formed by a photochemical reaction involving ROG, NOX, and sunlight. These emissions could exceed SMAQMD-established mass emission thresholds. In addition, operation of the project could result in a net increase in criteria air pollutants or precursors that would exceed SMAQMD-established mass emission thresholds. Therefore, construction- and operation-related emissions could result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment with respect to the NAAQS or CAAQS. This impact would be **potentially significant** and this issue will be analyzed further in the EIR.

c) Expose sensitive receptors to substantial pollutant concentrations?

Potentially significant impact. TACs would be emitted during both project construction and operations. TACs are a defined set of airborne pollutants that may pose a present or potential hazard to human health. TACs may cause or contribute to an increase in mortality or in serious illness. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

The health effects associated with TACs are quite diverse and generally are assessed locally, rather than regionally. TACs can cause long-term health effects such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage; or short-term acute affects such as eye watering, respiratory irritation (a cough), running nose, throat pain, and headaches.

For evaluation purposes, TACs are separated into carcinogens and non-carcinogens based on the nature of the physiological effects associated with exposure to the pollutant. Carcinogens are assumed to have no safe threshold below which health impacts would not occur. This contrasts with criteria air pollutants for which acceptable levels of exposure can be determined and for which the NAAQS and CAAQS have been established. Cancer risk from TACs is expressed as excess cancer cases per one million exposed individuals, typically over a lifetime of exposure.

Project construction would result in new emissions of criteria air pollutants and precursors, as well as TACs. Particulate matter emitted from diesel construction equipment (diesel PM) would be the primary TAC of concern associated with construction of the project. The proposed project would be designed and constructed via a design-build method of project delivery, and with this method, the design would be required to meet specific performance criteria. Thus, the number and type of generators used to convert biogas to electricity is not known at the time of this analysis. As a stationary source of TAC emissions, the project would be subject to a detailed permitting process under SMAQMD Regulation 2, Permits (SMAQMD 2020:5-6).

Because project construction and operation would result in TACs, this impact is **potentially significant**. This issue will be analyzed further in the EIR.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less-than-significant impact. Minor odors from the use of heavy equipment during construction would be temporary and intermittent and would dissipate rapidly from the source with increases in distance. It is not anticipated that these odors would be noticeable at the nearest residential receptors, which are located approximately 4,740 feet away. Operation of the project would not result in the generation of more biogas or the generation of any new odors. Therefore, project construction or operation would not result in exposure of a substantial number of people to objectionable odors, and this impact would be **less than significant**.

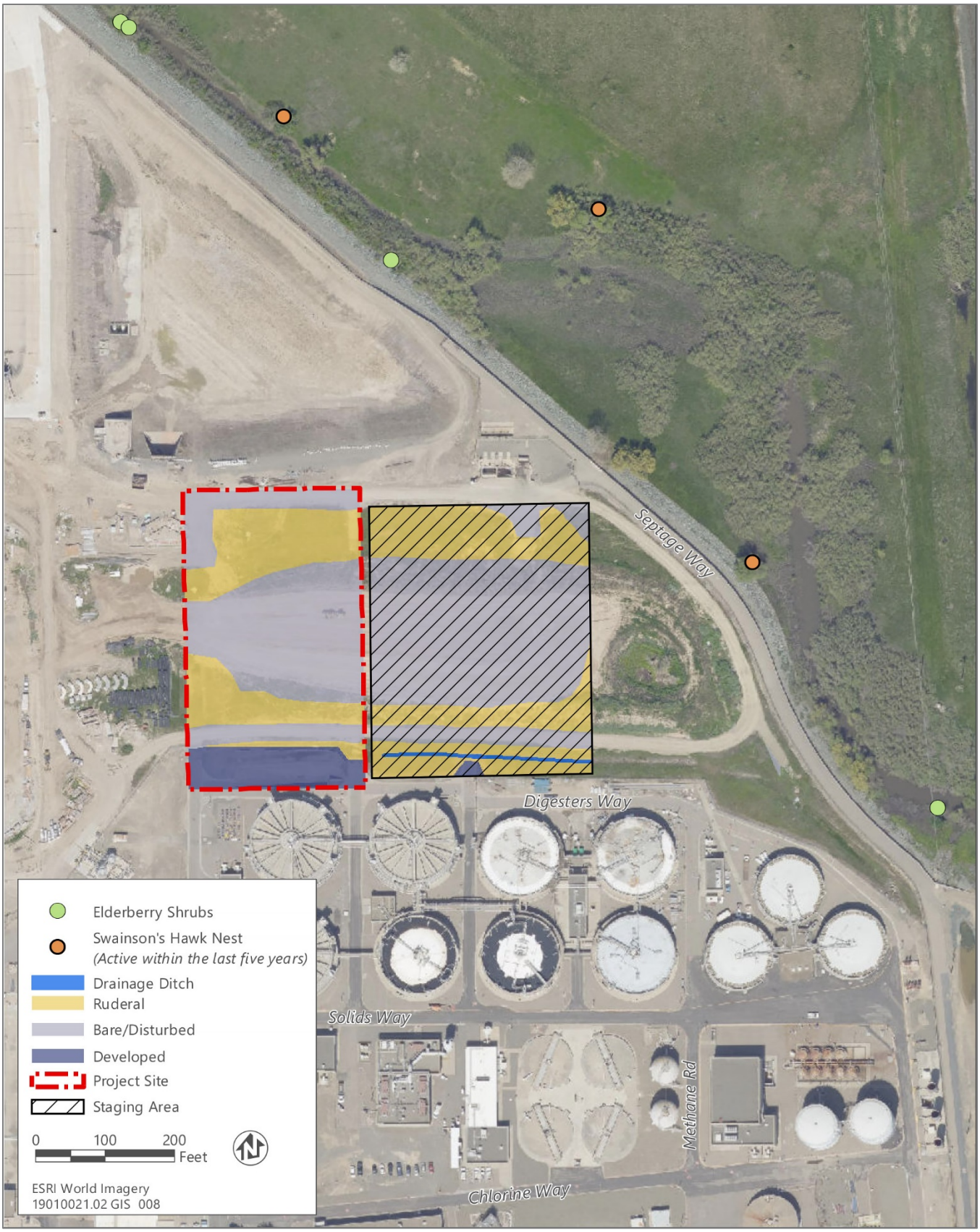
2.4 BIOLOGICAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IV. Biological Resources.				
Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?	☒	☐	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?	☐	☐	☐	☒
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☒	☐	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☒	☐	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

2.4.1 Environmental Setting

The project site and staging area consist of disturbed, vacant land located within the existing SRWTP site. The project site and staging area have been partially graded and are currently used for staging and material storage for ongoing projects within the SRWTP site. The SRWTP site is surrounded by the Bufferlands, which is a mix of uplands and wetlands that provide high-quality habitat for a variety of common and special-status plant and wildlife species. Historically, the SRWTP was raised several feet by importing fill to the site. The topography within the project site and surrounding Bufferlands is generally flat with the only topographic variation created by levees, dirt mounds in spoils areas, and low spots not previously filled (see Figures 2.1-1 and 2.1-2 in Section 2.1, "Aesthetics," above).

The project site and staging area support four land cover types: drainage ditch, ruderal, bare/disturbed, and developed (Figure 2.4-1).



Source: adapted by Ascent Environmental in 2021

Figure 2.4-1 Vegetation Land Cover

LAND COVER

The land cover types were identified through review of Google Earth aerial imagery and verified during a reconnaissance survey conducted on September 23, 2020. The disturbed land cover type is associated with roads and graded portions of the SRWTP site. The developed land cover type includes areas that have impervious surfaces. Plants observed within the project site and staging area are consistent with disturbed and ruderal land cover types and include fireweed (*Epilobium brachycarpum*), Italian thistle (*Carduus pycnocephalus*), yellow star thistle (*Centaurea solstitialis*), stinkwort (*Dittrichia graveolens*), wild radish (*Raphanus raphanistrum*), blessed milk thistle (*Silybum marianum*), rabbit's foot grass (*Polypogon monspeliensis*), wild oats (*Avena fatua*), ripgut brome (*Bromus diandrus*), brome (*Bromus* sp.), narrow-leaved plantain (*Plantago lanceolota*), common sunflower (*Helianthus annuus*), sweetclover (*Melilotus* sp.), curly dock (*Rumex crispus*), sweet fennel (*Foeniculum vulgare*). Five Fremont cottonwood (*Populus fremontii*) trees are located east of the staging area. The cottonwood trees are at the original ground level prior to filling of the area, which is 12 feet below the surrounding ground level. The tree crowns are approximately 7 to 10 feet above surrounding ground level.

There is a drainage ditch that collects runoff water from the area around the digesters and from the project site. This drainage ditch drains to the east into a culvert that directs the runoff to the headwaters of the treatment plant for treatment. Vegetation within the drainage ditch consists of wild oats, Italian thistle, yellow star thistle, stinkwort, rabbit's foot grass, and common sunflower. Elderberry shrubs are present within the Bufferlands northeast of the project site; however, no elderberry shrubs are located within the project site or staging area.

SPECIAL-STATUS SPECIES

Query results of the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) system, California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB), California Native Plant Society's Inventory of Rare and Endangered Plants of California, and the South Sacramento Habitat Conservation Plan (SSHCP) covered species list indicate that 23 special-status plant species and 35 special-status wildlife species have been recorded within the U.S. Geological Survey topographic quadrangle containing the project site and the eight surrounding quadrangles. No occurrences of these species have been recorded within the project site or staging area (see Appendix A).

The project site and staging area provide low quality foraging habitat for raptors, particularly Swainson's hawk due to limited prey availability and ongoing disturbance, such as staging for ongoing projects, driving of commercial septic pump trucks, and disking for fire control. There are five cottonwood trees east of the proposed staging area, but no nest structures attributable to raptors were observed within the trees. The height of the trees, in relation to existing ground level, likely preclude raptors from nesting in the trees.

COMMON WILDLIFE SPECIES

There are many common wildlife species that use disturbed areas, such as the project site and staging area, for foraging, roosting, and/or nesting. These species include native animals that have adapted well to living close to humans, such as red-tailed hawk (*Buteo jamaicensis*), coyote (*Canis latrans*), Virginia opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), western fence lizard (*Sceleroporus occidentalis*), and tree swallow (*Hirundo rustica*), as well as nonnative species, such as bullfrog (*Rana catesbiana*), house sparrow (*Passer domesticus*), and European starling (*Sturnus vulgaris*). Common native and nonnative wildlife species could use the project site and staging area for breeding and are likely to move through the area on a regular basis while foraging.

AQUATIC RESOURCES

The drainage ditch present at the south end of the staging area is part of the SRWTP operations. This drainage ditch collects runoff from the digesters area and staging area and conveys it to the headworks of the SRWTP. Features that are part of a treatment system are excluded from state and federal jurisdiction and, therefore, there are no state or federally protected wetlands or other waters within the project site or staging area.

PROTECTED TREES

The Sacramento County Tree Preservation Ordinance (Chapter 19.12 of the County Code) provides protections for native oak trees. Chapter 19.12 of the County Code states that "it shall be the policy of the County to preserve all trees possible through its development review process." It should be noted that to be considered a tree, as opposed to a seedling or sapling, the tree must have a diameter at breast height (dbh) of at least 6 inches or, if it has multiple trunks of less than 6 inches each, a combined dbh of 10 inches. Trees meeting this definition are protected under the County's Tree Ordinance, and no trenching, grading, or filling within the dripline, or destroying, killing, or removing any such tree is allowed without a tree permit from the Director of Public Works. The Sacramento County General Plan Conservation Element (Conservation Element) [Sacramento County 2011] policies CO-138 and CO-139 also provide protections for native trees:

- CO-138. Protect and preserve non-oak native trees along riparian areas if used by Swainson's hawk, as well as landmark and native oak trees measuring a minimum of 6 inches in diameter or 10 inches aggregate for multi-trunk trees at 4.5 feet above ground.
- CO-139. Native trees other than oaks, which cannot be protected through development, shall be replaced with in-kind species in accordance with the established tree planting specifications, the combined diameter of which shall equal the combined diameter of the trees removed.

2.4.2 Discussion

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?

Potentially significant impact. Because the project site and staging area do not provide habitat suitable for any special-status plant species, they are not discussed further. As discussed above, special-status wildlife species have the potential to occur in the project vicinity and could be directly or indirectly affected by project construction. Implementation of environmental commitment EC-1 in Chapter 1, "Project Description," would reduce impacts to special-status species. However, there would still be the potential for special-status species to be adversely affected by the project. Therefore, this impact would be potentially significant and this issue will be analyzed further in the EIR.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?

No impact. Riparian habitat or other sensitive natural communities do not occur within the project site or staging area. In addition, the project would not require any tree removal or affect riparian habitat or sensitive natural communities in the adjacent Bufferlands. Therefore, there would be no impact.

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No impact. No state or federally protected wetlands occur within the project site or staging area. As discussed above, the nearby drainage ditch is part of the SRWTP system and is not considered a state or federally protected wetland. In addition, the project would not have a substantial adverse effect on the drainage ditch. Therefore, there would be **no impact**.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Potentially significant impact. The project site is located within the Pacific Flyway, which is a major north-south route for migratory birds along western North America. Large numbers of waterfowl, shorebirds, and cranes may move through the area seasonally and may congregate in wetlands, grasslands, and agricultural fields for winter or use them as resting grounds during longer migrations from the Arctic to Central or South America.

Although the project would not require tree removal, implementation of the project could adversely affect common migratory birds through disturbance during the breeding season. Loss of active nests of common species would be inconsistent with the Migratory Bird Treaty Act and California Fish and Game Code. Therefore, impacts related to migratory species would be **potentially significant** and this issue will be analyzed further in the EIR.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Potentially significant impact. Project development would not require removal of the any trees. Therefore, the project would not conflict with the Sacramento County Tree Protection Ordinance. No riparian habitat or wetlands would be affected by the project. However, the project has the potential to result in disturbance or loss of habitat for sensitive species. Therefore, the project has the potential to conflict with policies or ordinances protecting biological resources. This impact would be **potentially significant** and this issue will be analyzed further in the EIR.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No impact. The project site is within the area covered by the SSHCP. The proposed project will not remove land cover habitat that requires mitigation fees pursuant to the SSHCP, thus the project would not conflict with the SSHCP. There would be **no impact**.

2.5 CULTURAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
V. Cultural Resources. Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☒	☐	☐	☐
c) Substantially disturb human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

2.5.1 Environmental Setting

In January 2020, ESA completed a cultural resources assessment for the *Regional San Recycled Water Distribution Mains, Lateral Pipelines, and On-Farm Connections Project* (Regional San 2020a). The report covered an area that began approximately 0.25-mile south of the current project site and continued to the south. Therefore, while the background setting information is appropriate for the proposed project, the cultural resources records search conducted for the report did not cover the current project site.

RECORDS SEARCH

An updated cultural resources records search was completed at the North Central Information Center (NCIC) of the California Historical Resources Information System on December 15, 2020 (File No. SAC-20-175). The results of the NCIC search revealed no archaeological resources, built-environment historical resources, or previous reports within the project site or staging area. One previously recorded historic-period resource, the Western Pacific Railway, is located outside of the project site but within the 8-mile search radius. Eight cultural reports have been conducted outside of the project site but within the search radius.

ARCHAEOLOGICAL SENSITIVITY

Landforms that predate the earliest estimated periods for human occupation in the region are considered to have a very low potential for buried archaeological resources, while those that postdate human occupation are considered to have a higher potential for buried archaeological resources. Currently, archaeological research indicates that the earliest evidence for human occupation of California dates to the Late Pleistocene, which ended approximately 11,500 before present. Therefore, the potential for buried archaeological deposits in landforms from or predating the Late Pleistocene is very low (Regional San 2020a:24).

The project site and staging area are mapped as Pleistocene-age sediments. Because these sediments were deposited prior to human occupation in the area, the potential for buried archaeological resources representing past human use and occupation would be very low (Regional San 2020a:24).

2.5.2 Discussion

a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?

No impact. There are no built-environment structures within the project site or staging area and the records search revealed no built-environment historical resources within the project vicinity. Therefore, there would be **no impact** to historical resources.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Potentially significant impact. Although the NCIC records search did not reveal any previously identified archaeological resources and the project site has a low sensitivity for buried resources, project-related ground-disturbing activities could result in discovery or damage of yet undiscovered archaeological resources as defined in State CEQA Guidelines Section 15064.5. This impact would be **potentially significant** and this issue will be analyzed further in the EIR.

c) Substantially disturb human remains, including those interred outside of formal cemeteries?

Less-than-significant impact. There are no known cemeteries or burials on the project site or immediate area. However, because earthmoving activities associated with project construction would occur, there is potential to encounter buried human remains or unknown cemeteries in areas with little or no previous disturbance.

California law recognizes the need to protect Native American human burials, skeletal remains, and items associated with Native American burials from vandalism and inadvertent destruction. The procedures for the treatment of Native American human remains are contained in California Health and Safety Code Section 7050.5 and California Public Resources Code Section 5097.

These statutes require that, if human remains are discovered, potentially damaging ground-disturbing activities in the area of the remains shall be halted immediately, and the County coroner shall be notified immediately. If the remains are determined by the coroner to be Native American, the Native American Heritage Commission (NAHC) shall be notified within 24 hours and the guidelines of the NAHC shall be adhered to in the treatment and disposition of the remains. Following the coroner's findings, the NAHC-designated Most Likely Descendant and the landowner shall determine the ultimate treatment and disposition of the remains and take appropriate steps to ensure that additional human interments, if present, are not disturbed. The responsibilities for acting upon notification of a discovery of Native American human remains are identified in PRC Section 5097.94.

Compliance with California Health and Safety Code Section 7050.5 and California Public Resources Code Section 5097 would provide an opportunity to avoid or minimize the disturbance of human remains, and to appropriately treat any remains that are discovered. Therefore, this impact would be **less than significant**.

2.6 ENERGY

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. Energy.				
Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

2.6.1 Environmental Setting

ENERGY TYPES AND SOURCES

California relies on a regional power system composed of a diverse mix of energy sources, including:

- **Petroleum**: Petroleum products (gasoline, diesel, jet fuel) are consumed almost exclusively by the transportation sector, which is responsible for 85 percent of the petroleum consumed in the state (EIA 2020). In 2015, a total of 15.1 billion gallons of gasoline were sold in California (CEC 2020). To meet CARB regulations, all gasoline and diesel fuel sold in California for motor vehicles is refined to be a specific blend of motor gasoline called California Reformulated Gasoline (EIA 2020).
- **Natural gas**: While the majority of natural gas consumers in California are residential and small commercial users, these users consume only about 35 percent of natural gas in the state. Larger volume gas consumers, such as utilities for electricity generation and industrial consumers, although fewer in number, consume the remaining 65 percent of natural gas used in the state (CPUC 2020). Biogas is renewable energy alternative to the use of natural gas.
- **Electricity and renewables**: In 2002, Senate Bill [SB] 1078 established a renewables portfolio standard (RPS) program. In 2018, SB 1078 was superseded by SB 100, which created the 60 percent target by 2030 described below. The program is jointly implemented by the California Public Utilities Commission and the California Energy Commission and requires all load-serving entities to procure 60 percent of their total electricity retail sales from renewable energy sources by 2030. Most retail sellers met or exceeded their 29-percent interim RPS target in 2018, including all large investor-owned utilities, which provide electricity to 75 percent of all utility customers (CPUC 2019; EIA 2019). Biogeneration facilities, such as the proposed project, that use digester gas to generate electricity are eligible for RPS credits under the RPS Eligibility Guidebook. SMUD is the load-serving entity that is the primary electricity supplier Sacramento County.
- **Alternative fuels**: Conventional gasoline and diesel may be replaced (depending on the capability of the vehicle) with many alternative transportation fuels (e.g., biodiesel, hydrogen, electricity). Use of alternative fuels is encouraged through various statewide regulations and plans (e.g., Low Carbon Fuel Standard, AB 32 Scoping Plan).

ENERGY FACILITIES AND SERVICES IN THE PROJECT VICINITY

Electricity service is provided to the SRWTP site and the project site by SMUD. SMUD has existing 69 kilovolt facilities on the project site and along East Access Road. SMUD also operates the nearby Pocket and Franklin electrical substations, complexes of transformers, and switches located to the north and south, respectively. These two major

substations are supplied with 230,000 volts (230 kilovolts) from the larger electrical grid and, along with the Carson Cogen Plant, supply electricity to the SRWTP. On average, the SRWTP requires up to 12 MW of electricity each day. Natural gas service is provided to the SRWTP site and project site by PG&E.

Currently, Regional San delivers renewable biogas generated by the SRWTP wastewater treatment process to SMUD according to the terms of the Commodity Agreement. Treated biogas resulting from digestion of solids at the SRWTP is captured and diverted to the Carson Cogen Plant or injection into a SMUD-owned, natural gas utility pipeline that delivers the combined gas to the Cosumnes Power Plant located at Rancho Seco. When used, the Carson Cogen Plant uses SRWTP biogas in a duct burner that, along with natural gas turbines, generates electricity. Waste heat from the gas turbine creates steam for use in a steam turbine to generate electricity. Together, two generators generate up to 100 MW of power for local residential and industrial use. Power from the Carson Cogen Plant is typically delivered to the local power grid, but it can also be sent directly to the SRWTP. More recently, SRWTP biogas is primarily sent to Cosumnes Power Plant, which uses the combination of natural gas and SRWTP biogas as fuel for turbines and produces up to 600 MW of power. SMUD claims credits towards its obligations under the RPS program for the biogas is uses to generate electricity at the Cosumnes Power Plant; however, SMUD does not claim RPS credit for the lesser amount of biogas it uses at the Carson Cogen Plant (CEC 2017; Cutlip, pers. comm. 2021).

2.6.2 Discussion

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less-than-significant impact. The project would result in energy consumption during construction and operation. Operation of the project would also result in generation of electricity and heat.

Construction

Energy would be required to construct the proposed project, operate, and maintain construction equipment, and transport construction materials. The one-time energy expenditure required to construct the new building and infrastructure associated with the proposed project would be non-recoverable. Most energy consumption would result from operation of construction equipment and vehicle trips associated with commute trips by construction workers and haul trucks supplying materials.

Construction of the project is estimated to require consumption of 30,813 gallons of diesel by off-road construction equipment, 145 gallons of diesel from construction-related truck trips, and 359 gallons of gasoline associated with construction workers commuting to and from the construction site. The energy needs for project construction would be temporary and are not anticipated to require additional capacity or increase peak or base period demands for electricity or other forms of energy. Construction equipment and associated energy consumption would be typical of that associated with construction of energy recovery projects.

Operation

Energy would also be required for operation of the project related to electricity, heat, and fuel for employees. Compliance with California Code of Regulations Title 24 Energy Efficiency Standards would result in an energy-efficient building. The new biogeneration facility would require electricity for operation. However, the proposed combustion engine generators would produce between 10 and 15 MW of power, which would offset utility power purchases. In addition, the project would result in a decrease in SRWTP electricity demand from SMUD. Annual electricity generated by the engines is estimated to be between 74,460 megawatt hours (MWh) and 105,000 MWh per year.

Operation of the project would also require the use of a limited amount of natural gas for blending with the biogas to account for fluctuations in digester gas production. However, the project would result a decrease in electricity demand from SMUD (a portion of which is provided through combustion of natural gas). Therefore, the overall

natural gas use is expected to be similar to existing conditions. Operation of a biogeneration facility at the SRWTP site would result in increased efficiencies compared to delivering the biogas to SMUD in exchange for electricity and steam.

Operation of the proposed project would require fewer than 10 new employees and would result in small increase in maintenance-related vehicle trips. Project trips would be limited to employee trips only and fuel consumption associated with vehicle trips would not be considered inefficient, wasteful, or unnecessary in comparison to other similar developments in the region.

According to Appendix F of the CEQA Guidelines, the means to achieve the goal of conserving energy includes decreasing overall per capita energy consumption, decreasing reliance on natural gas and oil, and increasing reliance on renewable energy sources. Given that the proposed project is a renewable energy project, it would increase reliance on renewable energy sources. The proposed project's energy consumption through construction, building operation, or transportation would not be considered wasteful, inefficient, or unnecessary. Therefore, this impact would be **less than significant**.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency

Less-than-significant impact. Relevant plans that pertain to the efficient use of energy include the California Energy Commission's (CEC's) Integrated Energy Policy Reports, which provides a summary of priority energy issues currently facing the state, outlining strategies and recommendations to further the State's goal of ensuring reliable, affordable, and environmentally responsible energy sources. Energy topics covered in the report include progress toward statewide renewable energy targets, renewable energy, energy provisioning reliability and infrastructure, and transportation energy demand (Bailey et al. 2021).

Project-generated VMT would increase slightly related to a small increase in long-term employees. Although the addition of up to 10 new employees would result in more energy use, the project would be designed with energy efficiency design features and the implementation of the project would offset all electricity use through electricity generated by the project. In addition, the project would further the state's goals for use of renewable energy. Therefore, the project would not conflict with a state or local plan for renewable energy or energy efficiency. This impact would be **less than significant**.

2.7 GEOLOGY AND SOILS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. Geology and Soils.				
Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☒	☐
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐

2.7.1 Environmental Setting

REGIONAL GEOLOGY

The project site lies within the Great Valley Geomorphic Province. The geologic parent material within the region was primarily formed from erosion of the Sierra Nevada range to the east and, to a lesser extent, the Coast Ranges to the west. About 30 million years ago, Great Valley deposition became dominated by freshwater runoff from the growing

Sierra Nevada and Coast Range mountains. This runoff created large alluvial fan complexes and vast lakes that filled the valley with thick accumulations of river and lacustrine sediments.

The merging of the massive alluvial fans of the Sierra Nevada and the smaller fans from the Coast Ranges and subsequent sea level rise and development of the Sacramento-San Joaquin Delta have confined the Sacramento River to a relatively narrow channel where it formed its current flood plain and historic natural levees.

SEISMICITY

The project site is not located within the vicinity of an Alquist-Priolo zone (CGS 2021). No known active faults occur in the project vicinity (Jennings and Bryant 2010). The closest known fault to the project site is the Vaca fault, located approximately 25 miles to the southwest (Sacramento County 2017). The nearest active (within the last 200 years) faults are the Cordelia and Green Valley faults, which are 37 and 41 miles from the project site, respectively.

TOPOGRAPHY AND SOILS

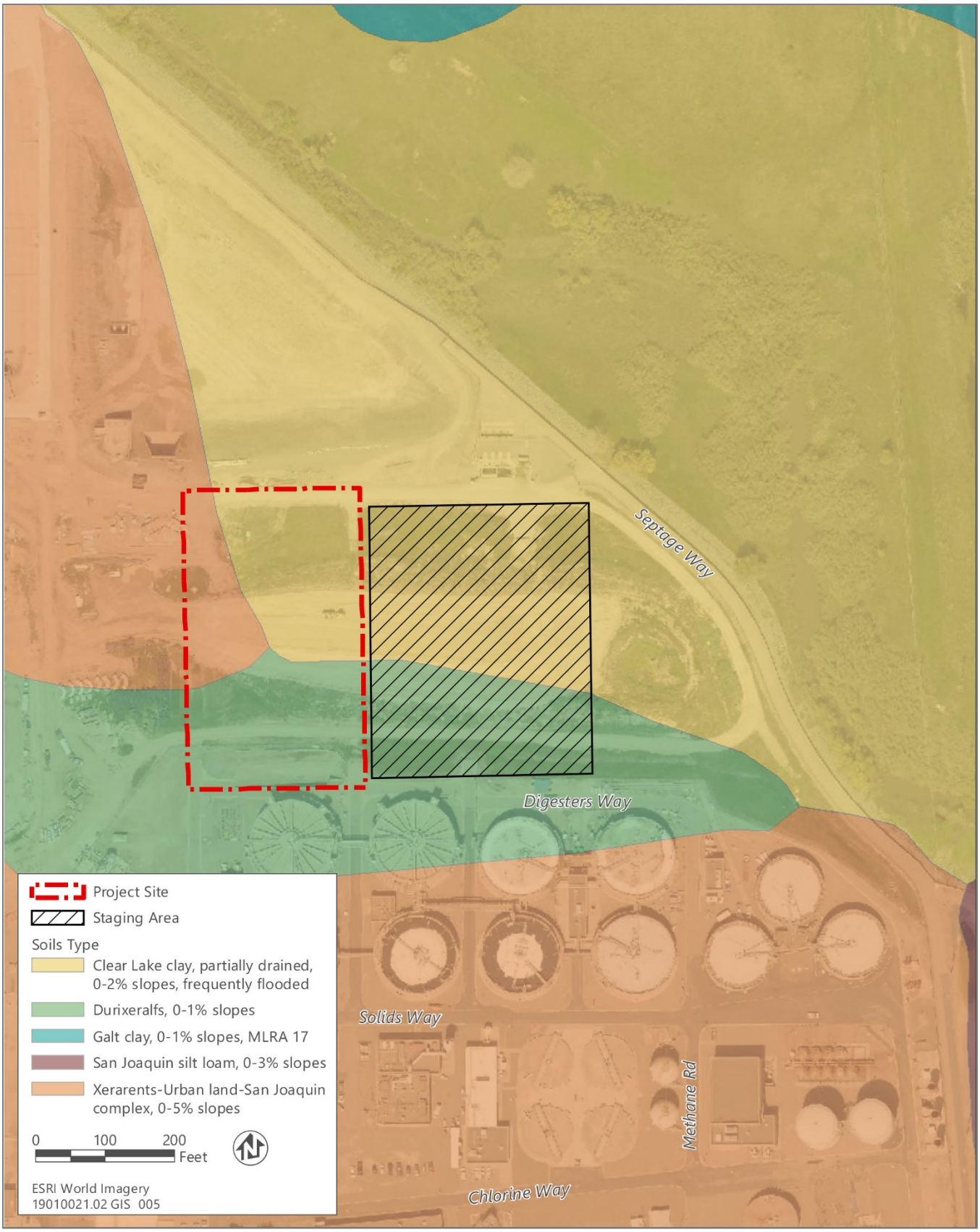
The project site is relatively flat. Soils underlying the project site and staging area include Clear Lake clay, partially drained, 0-2 percent slopes, Durixeralfs, 0-1 percent slopes, and Xerarents-Urban Land San Joaquin Complex, 0-5 percent slopes (Figure 2.7-1). All of these soil groups have slow permeability and runoff and high shrink-swell potential (NRCS 1993).

PALEONTOLOGICAL RESOURCES

Significant nonrenewable vertebrate and invertebrate fossils and unique geologic units have been documented throughout California. The fossil yielding potential of a particular area is highly dependent on the geologic age and origin of the underlying rocks. Paleontological potential refers to the likelihood that a rock unit will yield a unique or significant paleontological resource. Pleistocene or older (older than 11,000 years) continental sedimentary deposits are considered as having a high paleontological potential while Holocene-age deposits (less than 10,000 years old) are generally considered to have a low paleontological potential because they are geologically immature and are unlikely to have fossilized the remains of organisms.

The project site is located in the Sacramento Valley. The depositional history of the Sacramento Valley during the late Quaternary period (1.6 million years ago to the present) included several cycles related to fluctuations in regional and global climate that caused alternating periods of deposition followed by periods of subsidence and erosion.

A review of a geologic map prepared by Wagner et al. (1981) indicates that the project site is located within the Pleistocene-age Riverbank Formation. The Riverbank Formation is Pleistocene in age; estimates place it between 130,000 and 450,000 years before present. The Riverbank formation is known to contain vertebrate fossils. The Society of Vertebrate Paleontology Standard Guidelines indicate that the Riverbank Formation would be considered to have a high sensitivity for paleontological resources. A search of the University of California Museum of Paleontology's database was conducted on January 5, 2021. Records of paleontological finds maintained by the University of California Berkeley Museum of Paleontology (UCMP) state that there are 13 localities at which fossil remains have been found in Sacramento County; however, none of the sites are in the project vicinity (UCMP 2021).



Source: Data downloaded from NRCS in 2018 and adapted by Ascent Environmental in 2020

Figure 2.7-1 Soils

2.7.2 Discussion

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)

No impact. The Alquist-Priolo Act (Public Resources Code Sections 2621–2630) was passed in 1972 to mitigate the hazard of surface faulting to structures designed for human occupancy. The purpose of the Act is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The project site is not located within a fault zone as delineated on an Alquist-Priolo Fault Zoning Map (CGS 2021), nor is it located within a seismically active area. In addition, the project would not include any buildings for human occupancy. Therefore, **no impact** would occur.

ii) Strong seismic ground shaking?

Less-than-significant impact. No faults are mapped as crossing or trending towards the project site; therefore, the potential for surface rupture within the project site is considered low. Moderate ground motion could occur as a result of faults in the surrounding area; however, the new building and associated facilities would be constructed in accordance with the California Building Code (CBC), which provides minimum standards for building design in the State of California. Chapter 16 of the CBC (Structural Design Requirements) includes regulations and building standards governing seismically resistant construction and construction techniques to protect people and property from hazards associated with excavation cave-ins and falling debris/construction materials. Chapter 18 of the CBC provides regulations regarding site excavations, foundations, retaining walls, and grading, including, but not limited to, requirements for seismically resistant design, foundation investigation, stable cut and fill slopes, and excavation, shoring, and trenching. Because the project would be designed in accordance with the most recent provisions of the CBC, the project's seismic hazard impacts would be **less than significant**.

iii) Seismic-related ground failure, including liquefaction?

Less-than-significant impact. Liquefaction is possible in areas of loose, sandy soils with a high-water content. Soils located within the project site and staging area are moderately to well drained; however, groundwater depths are shallow (10 to 20 feet below sea level) (Regional San 2016). As discussed above in item a) ii), the new building and associated facilities would be constructed in accordance with the CBC, which provides regulations and building standards governing seismically resistant construction. Because the project would be designed in accordance with the most recent provisions of the CBC, the project's seismic hazard impacts related to liquefaction would be **less than significant**.

iv) Landslides?

Less-than-significant impact. The project site and surrounding area are located in a flat area. In general, landslide susceptibility is low in areas where slopes are low, even in weak ground material. Because slopes are generally flat in the project vicinity, landslide susceptibility for the project would be low. Therefore, this impact would be **less than significant**.

b) Result in substantial soil erosion or the loss of topsoil?

Less-than-significant impact. Grading and excavation during project construction would result in exposure of soil to potential wind and water erosion until the project site and staging area are effectively stabilized and revegetated. The project would disturb up to 5.6 acres that is not currently paved, and construction projects disturbing 1 acre or more

need to obtain coverage under the State Water Resources Control Board's Construction General Permit. The Construction General Permit requires the development and implementation of a stormwater pollution prevention plan (SWPPP). The SWPPP would include best management practices (BMPs) to protect stormwater runoff; a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs.

Runoff from the project site and staging area flows into the storm drainage system within the SRWTP site and is routed to the SRWTP for treatment. Treated stormwater is discharged in accordance with Regional San's existing the National Pollutant Discharge Elimination System (NPDES) permit (Order R5-2010-0114) for discharge of treated effluent to the Sacramento River. Compliance with these permitting requirements for construction and operation of the project would reduce this impact to a **less-than-significant** level.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

Less-than-significant impact. Slope instability includes landslides, debris flows, and rock fall. The only portion of Sacramento County that is considered to have landslide potential is along the eastern boundary, from the Placer County line to the Cosumnes River (Sacramento County 2017), which is not in the vicinity of the proposed project. In addition, the topography of the project site and staging area is relatively flat, and landslides and debris flows are not anticipated. Therefore, project-related impacts related to unstable soils would be **less than significant**.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial direct or indirect risks to life or property?

Less-than-significant impact. Substantial risk to life or property would generally occur to habitable buildings, which could experience compromised structural integrity because of expansive soils. The project does not include construction of any habitable buildings. However, if expansive soils are encountered on-site, damage to building foundations, underground utilities, and other subsurface facilities could occur if these facilities are not designed and constructed to resist the changing soil conditions. The project would comply with the CBC, which includes provisions for construction on unstable and expansive soils. As required by the CBC, preparation of a preliminary soils report and/or geotechnical investigation would assess site-specific conditions and include measures to prevent unstable or expansive soils from becoming problematic, such as fill selection, moisture control, and compaction during construction. Therefore, expansive soils would be addressed through standardized foundation engineering practices, and the project would be constructed in compliance with applicable CBC regulations and other County and state requirements to address expansive soils. Therefore, this impact would be **less than significant**.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

Less-than-significant impact. The project would include construction of a restroom that would connect to the SRWTP's existing general sanitary sewer drainage system. No septic tank or alternative waste disposal system would be constructed. Therefore, this impact would be **less than significant**.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less-than-significant impact. Although a UCMP records search did not identify fossils from the project vicinity, the project site and staging area are underlain by the Riverbank Formation, which is considered to have a high sensitivity for paleontological resources. Ground-disturbing activities in fossil-bearing soils and rock formations have the potential to encounter paleontological resources during project construction. Therefore, there is the potential to inadvertently damage or destroy paleontological resources that may be present below the ground surface. However, with implementation of environmental commitment EC-1 in Chapter 1, "Project Description," potential inadvertent

impacts to paleontological resources would be avoided because construction workers and operational personnel would be alerted to the possibility of encountering paleontological resources, work would stop if a paleontological resource was encountered, and if unique paleontological resources are encountered they would be identified and salvaged by a qualified paleontologist, thereby preventing the destruction of a unique paleontological resource. This impact would be **less than significant**.

2.8 GREENHOUSE GAS EMISSIONS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. Greenhouse Gas Emissions.				
Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☒	☐	☐	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☒	☐	☐	☐

2.8.1 Environmental Setting

Certain gases in the earth's atmosphere, classified as greenhouse gases (GHGs), play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth.

Prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. GHG emissions contributing to global climate change are attributable, in large part, to human activities associated with on-road and off-road transportation, industrial/manufacturing, electricity generation by utilities and consumption by end users, residential and commercial onsite fuel usage, and agriculture and forestry. It is "extremely likely" that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in GHG concentrations and other anthropogenic forcing together (IPCC 2014:5).

Climate change is a global problem. GHGs are global pollutants because even local GHG emissions contribute to global impacts. GHGs have long atmospheric lifetimes (one to several thousand years) and persist in the atmosphere long enough to be dispersed around the globe. Although the lifetime of any particular GHG molecule is dependent on multiple variables and cannot be determined with any certainty, it is understood that more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration (IPCC 2013:467).

2.8.2 Regulatory Setting

STATEWIDE GHG EMISSION TARGETS AND THE CLIMATE CHANGE SCOPING PLAN

Reducing GHG emissions in California has been the focus of the state government for approximately two decades (CEC 2019). GHG emission targets established by the state legislature include reducing statewide GHG emissions to 1990 levels by 2020 (AB 32 of 2006) and reducing them to 40 percent below 1990 levels by 2030 (SB 32 of 2016). Executive Order S-3-05 calls for statewide GHG emissions to be reduced to 80 percent below 1990 levels by 2050. Executive Order B-55-18 calls for California to achieve carbon neutrality by 2045 and achieve and maintain net negative GHG emissions thereafter. These targets are in line with the scientifically established levels needed in the United States to limit the rise in global temperature to no more than 2 degrees Celsius, the warming threshold at which major climate disruptions, such as super droughts and rising sea levels, are projected; these targets also pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius (United Nations 2015:3).

CLIMATE CHANGE SCOPING PLAN

California's 2017 Climate Change Scoping Plan (2017 Scoping Plan), prepared by the California Air Resources Board (CARB), outlines the main strategies California will implement to achieve the legislated GHG emission target for 2030 and "substantially advance toward our 2050 climate goals" (CARB 2017a:1, 3, 5, 20, 25–26). It identifies the reductions needed by each GHG emission sector (e.g., transportation, industry, electricity generation, agriculture, commercial and residential, pollutants with high global warming potential, and recycling and waste). Among many other reductions, it calls for the use of renewable biofuels, including biogas generated at wastewater treatment plants, in place of fossil fuels (CARB 2017a:64).

RENEWABLES PORTFOLIO STANDARD PROGRAM

California has passed legislation requiring the increase in use of renewables to produce electricity for consumers. California utilities are required to generate 33 percent of their electricity from renewables by 2020 (SB X1-2 of 2011); 52 percent by 2027 (SB 100 of 2018); 60 percent by 2030 (also SB 100 of 2018); and 100 percent by 2045 (also SB 100 of 2018). These targets are the basis of California's Renewables Portfolio Standard (RPS) program.

SHORT-LIVED CLIMATE POLLUTANT REDUCTION STRATEGY

Pursuant to SB 1383 of 2016, CARB adopted the *Short-Lived Climate Pollutant (SLCP) Reduction Strategy*, which is part of CARB's 2017 Scoping Plan and is California's plan for reducing emissions of high global-warming potential gases with short atmospheric lifetimes, including methane. As one of its measures, the strategy strives to reduce GHG emissions and displace fossil-based natural gas (CARB 2017b; CARB 2017a:3). It calls for the use of anaerobic digestion facilities at wastewater treatment plants to produce methane and the use of this methane to generate electricity (CARB 2017b:77–78).

LOCAL CLIMATE ACTION PLANS

Most of the local jurisdictions served by the SRWTP have established their own plans for reducing GHGs, including Sacramento County, and the Cities of Sacramento, Elk Grove, Citrus Heights, Folsom, and West Sacramento. The City of Rancho Cordova and the communities of Courtland and Walnut Grove are also served by the SRWTP but have not prepared climate action plans. Each climate action plan establishes a local inventory of GHG emissions, adopts a GHG reduction target, and identifies GHG reduction measures for achieving these targets. Many of the GHG reduction measures in these local CAPs emphasize the need to reduce reliance on nonrenewable forms of energy and, conversely, encourage the use of renewable forms of energy, including solar and biogas. While these local CAPs recognize the GHG emissions associated with the treatment of wastewater generated within their jurisdictions—treatment that is provided by the SRWTP—the local climate action plans do not include measures pertaining to how the SRWTP operates.

2.8.3 Discussion

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Potentially significant impact. Construction-related GHGs would be emitted by off-road equipment, haul trucks transporting equipment and materials, and commute trips by construction workers.

The biogas from the digesters is a renewable fuel (biogenic) and does not contribute to GHG emissions. The project's operational GHG emissions would include GHGs emitted by the new cogeneration system that are attributable to natural gas used for blending, and by the additional worker commute trips to and from the project site. Because the project would result in construction- and operation-related emissions of GHGs, it has the potential to exceed the

SMAQMD-recommended threshold of 1,100 $MTCO_2e$/year. Therefore, the project's GHG emissions would be **potentially significant** and this issue will be analyzed further in the EIR.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Potentially significant impact. See item a) above. The construction and operation of the project will be evaluated to determine if it would conflict with applicable plans, policies, or regulations adopted for the purpose of reducing GHG emissions. This impact is **potentially significant** and this issue will be analyzed further in the EIR.

2.9 HAZARDS AND HAZARDOUS MATERIALS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. Hazards and Hazardous Materials.				
Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	☒	☐

2.9.1 Environmental Setting

HAZARDOUS MATERIALS

The project site is within the SRWTP property, which is surrounded by the Bufferlands. Under existing conditions, routine operation of the SRWTP requires the on-site storage and use of a variety of chemicals in support of the wastewater treatment process and daily operations and maintenance. Chemicals utilized or otherwise located on-site in reportable quantities are inventoried and reported in accordance with applicable regulations. All chemicals are either consumed during use or disposed of as hazardous waste, in accordance with applicable regulations and requirements.

A database search of various agency lists was conducted for the project site and surrounding area to identify hazardous waste contamination sites. There are no hazardous waste sites within 0.25-mile of the project site (DTSC 2021, CalEPA 2021, SWRCB 2021).

SCHOOLS AND AIRPORTS

The project site is not located within 0.25-mile of a school. The nearest schools to the project site are John D Sloat Elementary School and Edward Kemble Elementary School, both of which are 1.4 miles away.

The Borges-Clarksburg Airport, a small, unpaved private airstrip for primarily agricultural and limited recreational use, is located approximately 2.5 miles west of the project site, immediately west of the Sacramento River. The next closest airport is the Sacramento Executive Airport, which is located approximately 4.2 miles northwest of the project site. The project site is not located within any airport approach or departure safety zones.

HAZARD AND HAZARDOUS MATERIALS PLANS

Existing hazards and hazardous materials are managed on-site through several risk management plans, programs, and requirements. SRWTP's Risk Management Plan/Process Safety Management Program identifies the equipment, maintenance, inspection, and training associated with the procedures used in handling hazardous/regulated substances at the facility, in excess of federal and State threshold quantities. The program describes the analyses of hazards conducted to assess possible effects to employees, offsite public and environmental receptors, and equipment.

General emergency response for the SRWTP is provided by the Cosumnes Fire Department as the first responder for fire and other emergency services. Hazardous materials/waste spills are managed via a contract with a licensed hazardous waste hauler.

SRWTP also maintains an existing hazardous materials plan (HMP) pursuant to the requirements of the Sacramento County Environmental Management Department to satisfy requirements for emergency response provisions of California Health and Safety Code Section 6.95 (Regional San 2020b). The HMP was most recently revised in 2020 and is certified annually by the Sacramento County Environmental Management Department pursuant to the requirements of California Health and Safety Code Section 25503.3(c). The purpose of the HMP is to minimize the potential for employee exposure or public exposure to an actual or threatened hazardous material release at the existing facility.

Principal elements of the HMP are descriptions of hazardous materials used at SRWTP, their properties and functions, training programs that facilitate their proper use, and maps showing locations of their use and storage. The plan also provides detailed instructions for reporting emergency events and notifying key response personnel and authorities in the event of a release; site evacuation procedures; and methods to use to mitigate a release, including locations and capabilities of emergency response equipment, spill containment, cleanup, and sources of technical advice.

The Sacramento County Evacuation Plan and the HMP identify evacuation routes in the project vicinity. Evacuation routes include major arterials, I-5, and Dwight Road (Sacramento County OES 2018).

WILDLAND FIRE HAZARDS

The California Department of Forestry and Fire Protection maintains fire hazard severity zone (FHSZ) maps for the Local Responsibility Area (LRA) and State Responsibility Area. These areas are mapped based on fuels, terrain, weather, and other relevant factors. The project site is located within the LRA but is not categorized as a "Very High" FHSZ (CAL FIRE 2021).

2.9.2 Discussion

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less-than-significant impact. Construction of the project would involve the routine transport and handling of hazardous substances such as diesel fuels, lubricants, and solvents. Handling and transport of these materials could result in the exposure of workers to hazardous materials. Construction workers would be required to use, store, and transport hazardous materials in accordance with local, state, and federal regulations, including California Occupational Safety and Health Administration and California Department of Toxic Substances Control (DTSC) requirements and manufacturer's instructions, during project construction. Small amounts of lubricants would be stored on-site for operation of the biogas facility. The project would be required to implement and comply with existing hazardous materials regulations and the storage and handling of hazardous materials would be consistent with chemicals currently stored on-site for operation of the SRWTP. In addition, any changes to storage of on-site chemicals would be addressed by SRWTP's existing hazard and hazardous materials plans. Therefore, the project would not create significant hazards to the public or environment through the routine transport, use, and disposal of hazardous materials. This impact would be **less than significant**.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?

Less-than-significant impact. There are no reported or anticipated sources of hazardous material contamination within the project site or staging area. In addition, the potential for accidental release of hazardous materials such as fuels, oils, grease, and lubricants during construction or operation, and the storage and handling of hazardous materials for operation would be addressed by SRWTP's existing hazard and hazardous materials plans. However, construction within the project site including excavation of soils, could potentially result in disturbance of previously unknown contaminants. These actions could result in the exposure of construction workers to hazardous materials. Implementation of environmental commitment EC-2 in Chapter 1, "Project Description," would avoid potential hazards associated with disturbance of previously unknown contaminants because remediation would be required upon discovery of unknown contaminates on the site. Therefore, this impact would be **less than significant**.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No impact. As stated above, the nearest schools are both located approximately 1.4 mile from the project site. There are no schools within 0.25-mile of the project site. Therefore, there would be **no impact**.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No impact. The Hazardous Waste and Substances Sites List (Cortese List) is a planning document used by the state and local agencies, and developers to comply with the CEQA requirements in providing information about the location of hazardous materials release sites. Government Code Section 65962.5 requires California Environmental Protection Agency to develop at least annually an updated Cortese List. DTSC is responsible for a portion of the information contained in the Cortese List. Other State and local government agencies are required to provide additional hazardous material release information for the Cortese List. DTSC's EnviroStor database provides DTSC's component of Cortese List data.

As discussed above, review of regulatory agency databases indicated that there are no hazardous waste sites within 0.25-mile of the project site (DTSC 2021, CalEPA 2021, SWRCB 2021). In addition, neither the project site nor staging area are identified on the Cortese list or other state or county hazardous materials lists. Therefore, there would be **no impact**.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

No impact. There are no public airports within 2 miles of the project site, and the project site is not within an airport land use plan area. The nearest airport is Borges-Clarksburg Airport, which is a private airstrip located 2.5 miles from the project site. This airstrip is limited to agriculture and recreational use and would not result in excessive noise for people working on-site. Therefore, there would be **no impact**.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less-than-significant impact. The County Evacuation Plan and the HMP identify evacuation routes in the project vicinity. Trucks and equipment traveling to the project site would use Laguna Boulevard, Dwight Road, and Central Street. Dwight Road is identified as an evacuation route. Construction vehicles would stage within the project footprint, and they would not stage near or block any evacuation routes. However, use of Dwight Road for construction equipment could temporarily affect accessibility of roadways to emergency vehicles. Implementation of environmental commitment EC-3 in Chapter 1, "Project Description," would avoid potential interference with an evacuation plan because it would require the emergency access and access for local land uses be maintained. This impact would be **less than significant**.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

Less-than-significant impact. The project site is not in an area designated as having a high potential for wildland fires. Vehicles and other equipment would be used during construction, but the project would adhere to spark-arresting and fire extinguishing requirements. In the long-term, the project would result in construction of a new biogeneration facility that would have the potential for a fire hazards during operations related to the use of compressed natural gas (CNG) on-site. However, the CNG facilities would be within a paved area, and the facilities would have extensive safety measures. Additionally, CNG is currently used on-site at the Carson Cogen Plant. Furthermore, the project would not introduce new residents into a high fire severity zone. Therefore, the project would not expose people or structures to a significant loss, injury, or death involving wildland fires. This impact would be **less than significant**.

2.10 HYDROLOGY AND WATER QUALITY

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
X. Hydrology and Water Quality.				
Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☐	☐	☒	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i) Result in substantial on- or offsite erosion or siltation;	☐	☐	☒	☐
ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐
iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
iv) Impede or redirect flood flows?	☐	☐	☐	☒
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

2.10.1 Environmental Setting

SURFACE WATER

The project site is located within the 180-square-mile Morrison Creek Stream Group watershed, which includes Morrison, Laguna, and Unionhouse (also known as Beacon) creeks, among others. The entire Morrison Creek Stream Group watershed has two major sub-basins: an upper basin upstream of the Beach Lake dike and a lower basin downstream of the Beach Lake dike. The project site is located in a low-lying alluvial basin at the upper/lower Morrison Creek watershed boundary.

The upper portion of the Morrison Creek watershed contains an area of approximately 128 square miles above the I-5 bridge on Morrison Creek. Areas contributing runoff to this sub-basin include: the city of Sacramento south of Highway 50; the city of Elk Grove, the communities of Florin, Laguna, Franklin, Point Pleasant, and Hood; former Mather Air Force Base and former Sacramento Army Depot campuses; and rural areas in the eastern and southern parts of the watershed. Runoff in the watershed is conveyed through a network of streams that generally flow from east to west. The major creeks, Morrison, Unionhouse, and Laguna, converge just downstream of upper Beach Lake on the west side of the SRWTP. The combined discharge of the three watercourses continues as Morrison Creek, which is pumped to the Sacramento River via Sump 90 operated by the City of Sacramento.

Precipitation is the primary source of surface runoff at the project site and within the Morrison Creek Stream Group watershed. The average annual rainfall is approximately 20 inches in Sacramento, with approximately 90 percent of the annual rainfall occurring during the rainy season from November to April (Western Regional Climate Center 2020).

WATER QUALITY

The SRWTP operates under its existing individual the NPDES permit (Order R5-2016-0020) issued by the RWQCB for discharge of treated effluent to the Sacramento River.

In 2009, the State Water Resources Control Board adopted an amended General Permit for Discharges of Storm Water Associated with Construction Activity, NPDES Order No. CAS000002, Order No. 2009-0009-DWQ (Construction General Permit). Effective July 1, 2010, the amended Construction General Permit requires the development and implementation of a SWPPP. The SWPPP must include a site map showing the construction site perimeter, existing and proposed buildings, lots, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the site. The SWPPP must list BMPs the discharger will use to protect stormwater runoff; a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment.

On May 31, 2013, the RWQCB adopted Waste Discharge Requirements for Dewatering and Other Low Threat Discharges to Surface Waters, Order R5-2013-0074 NDPES No. CAG995001 (General Order for Dewatering). Individuals, public agencies, private businesses, and other legal entities discharging relatively pollutant-free wastewaters that pose little or no threat to the quality of surface waters, for either 4 months or less or have an average dry weather flow less than 0.25 million gallons per day (mgd), may obtain authorization under this General Order to discharge.

GROUNDWATER

The project site is within the Sacramento Valley Groundwater Basin and overlies a portion of the South American Subbasin. The South American Subbasin is a groundwater subbasin defined by the Department of Water Resources as extending from the Sierra Nevada to the Sacramento River, bounded on the north by the American River and on the south by the Cosumnes and Mokelumne Rivers. The South American Subbasin continues to be classified as a high priority basin under the California Statewide Groundwater Elevation Monitoring Basin Prioritization (Regional San 2016).

FLOODING

The local watershed of the Morrison Creek Stream Group has been subject to several large flooding events since the 1950s, with the largest and most significant event in February 1986.

The existing SRWTP flood protection system is a combination of conventional flood control levees, and natural land surface topography. A perimeter levee provides flood protection to the SRWTP site.

To provide a greater level of flood protection and remove the SRWTP from the 100-year floodplain, the U.S. Army Corps of Engineers (USACE) and Sacramento Area Flood Control Agency (SAFCA) constructed a series of flood control improvements within the Morrison Creek Stream Group (USACE and SAFCA 2011). The flood control system

includes enhancement of the Morrison, Elder, Florin and Unionhouse creek floodwalls and levees, excavating channels to increase flood flow conveyance capacity, and retrofitting bridges to accommodate the enlarged channels.

DRAINAGE FACILITIES

The SRWTP includes approximately 2,144 acres of Bufferlands surrounding the 1,049-acre SRWTP. Much of the precipitation that lands on the undeveloped Bufferlands percolates to groundwater. Ponded stormwater on permeable surfaces infiltrates into the ground, while water in seasonal ponds over low permeability materials evaporates over time. Excess stormwater runoff flows from the Bufferlands into unlined ditches. Ditches in the northeast and northwest of the Bufferlands discharge to Laguna and Morrison Creeks. The southern area of the Bufferlands drains to the Beach-Stone Lake system.

The SRWTP site drainage system consists of two separate systems known as the "general sanitary sewer drainage system" and the "storm drainage system." Both the general sanitary sewer drainage and stormwater drainage systems are routed to the SRWTP headworks for treatment.

The general sanitary sewer drainage system collects drainage originating inside all treatment plant structures and from outdoor areas directly associated with equipment, storage tanks, chemicals, and sanitary processes. A network of gravity flow pipes augmented by sumps, pumps, manholes, oil interceptors, and sluice gates serve the general sanitary sewer drainage system. Numerous sumps in the general sanitary sewer drainage system are required as a result of the many tributary drains in lower elevations, within structures, and in the various tunnels traversing the plant.

The storm drainage system is designed to separately collect irrigation and/or precipitation runoff from those areas that pose the least threat for contributing pollutants to receiving waters. This includes runoff from rooftops, roads, and treatment plant grounds.

2.10.2 Discussion

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

Less-than-significant impact. Construction of the project would disturb more than 1 acre and would be subject to the Construction General Permit. The Construction General Permit requires the development and implementation of a Water Pollution Control Plan (WPCP). The WPCP would include BMPs to protect stormwater runoff; a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs. In addition, if dewatering is required during construction, the project would comply with the General Order for Dewatering.

Drainage from the project site and staging area flows into the storm drainage system within the SRWTP site and is routed to the SRWTP headworks for treatment. Treated stormwater is discharged in accordance with Regional San's existing NPDES permit (Order R5-2016-0020) for discharge of treated effluent to the Sacramento River. Construction of the project would alter drainage on the project site and the new facilities would include a restroom that would generate wastewater. With project construction of the project, stormwater would continue to drain into the SRWTP's storm drain system and wastewater from the new restroom would be connected to the SRWTP's general sanitary sewer drainage system. Both drainage systems would be routed to the SRWTP headworks for treatment and would continue to be discharged in accordance with Regional San's existing NPDES permit.

Compliance with these permitting requirements for construction and operation of the project would reduce this impact to a **less-than-significant** level.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Less-than-significant impact. The project site is underlain by the South American Subbasin, which is classified as a high priority basin. However, no groundwater would be withdrawn during project construction or operation; therefore, the project would not impede sustainable groundwater management of the basin.

The project site is currently undeveloped, and construction of the project would increase impervious surfaces on-site. The project is expected to result in a maximum increase of 3.4 acres of impervious surfaces. Project implementation has the potential to alter groundwater recharge within the project site; however, the increase in impervious surfaces would not be substantial in relation to the size of the groundwater basin. Therefore, the project would not substantially interfere with groundwater recharge within the groundwater basin. For these reasons, there would be a **less-than-significant** impact on groundwater supplies and groundwater recharge.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i) Result in substantial on- or offsite erosion or siltation;

Less-than-significant impact. Project construction would involve excavation and movement of soil, which could result in erosion and siltation. These activities have the potential to cause or increase soil erosion and could discharge wastes into waterways in runoff. Compliance with existing requirements associated with the Construction General Permit and the General Order for Dewatering, if needed, would reduce potential erosion or siltation so that the project would not result in substantial long-term effects on water quality. In compliance with the Construction General Permit, a SWPPP and sediment and erosion control plan would be prepared and implemented. Project construction would include BMPs that would reduce and avoid substantial on- or offsite erosion and siltation or discharge of pollutants. As a result, this impact would be **less than significant**.

ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;

Less-than-significant impact. The project site is currently undeveloped and with project construction, the site would be covered by pavement and a new building. Project implementation has the potential to alter surface runoff from the addition of pavement on what is currently an undeveloped site. However, the project would not result in a substantial increase in impervious surfaces that would result in flooding on- or off-site. Drainage from the project site and staging area would continue to flow into the storm drainage system within the SRWTP site and be treated at the SRWTP. Therefore, this impact would be **less than significant**.

iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

Less-than-significant impact. As discussed above, drainage from the project site and staging area would continue to flow into the storm drainage system within the SRWTP site and be routed to the SRWTP for treatment. The project would not substantially increase the runoff from the project site and the SRWTP has adequate capacity to treat runoff from the project site. Therefore, the project would not exceed existing or planned stormwater capacity or create a substantial increase in runoff. This impact would be **less than significant**.

iv) Impede or redirect flood flows?

No impact. Since construction of the flood control improvements by USACE and SAFCA, the project site and staging area are no longer within a 100-year floodplain. In addition, there are no waterways within the project site or staging area and the project would not affect any waterways or redirect existing flows of a waterway. Therefore, the project would not impede or redirect flood flows. There would be **no impact**.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

Less-than-significant impact. The project site and staging area are not located within a flood hazard, tsunami, or seiche zone. The nearest large waterway is the Sacramento River, which could be subject to seiche. However, the project site is more than 2 miles from the river, and the potential for the project to be affected by a seiche or release pollutants as a result of a seiche is very low. This impact would be **less than significant**.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less-than-significant impact. Project construction would be subject to the Construction General Permit, which requires development and implementation of a SWPPP including BMPs to protect stormwater runoff. Wastewater and stormwater runoff generated by the project would be treated at the SRWTP and discharged in accordance with Regional San's existing NPDES permit, so there would be no conflict with or obstruction of a water quality control plan during project operation. Project operation would not require the use of groundwater. Project implementation would result in a slight increase in wastewater use related to the new restroom. However, the increase in wastewater use would not be substantial and would not conflict with or obstruct implementation of water quality control plan or sustainable groundwater management plan. Therefore, this impact would be **less than significant**.

2.11 LAND USE AND PLANNING

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. Land Use and Planning.				
Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

2.11.1 Environmental Setting

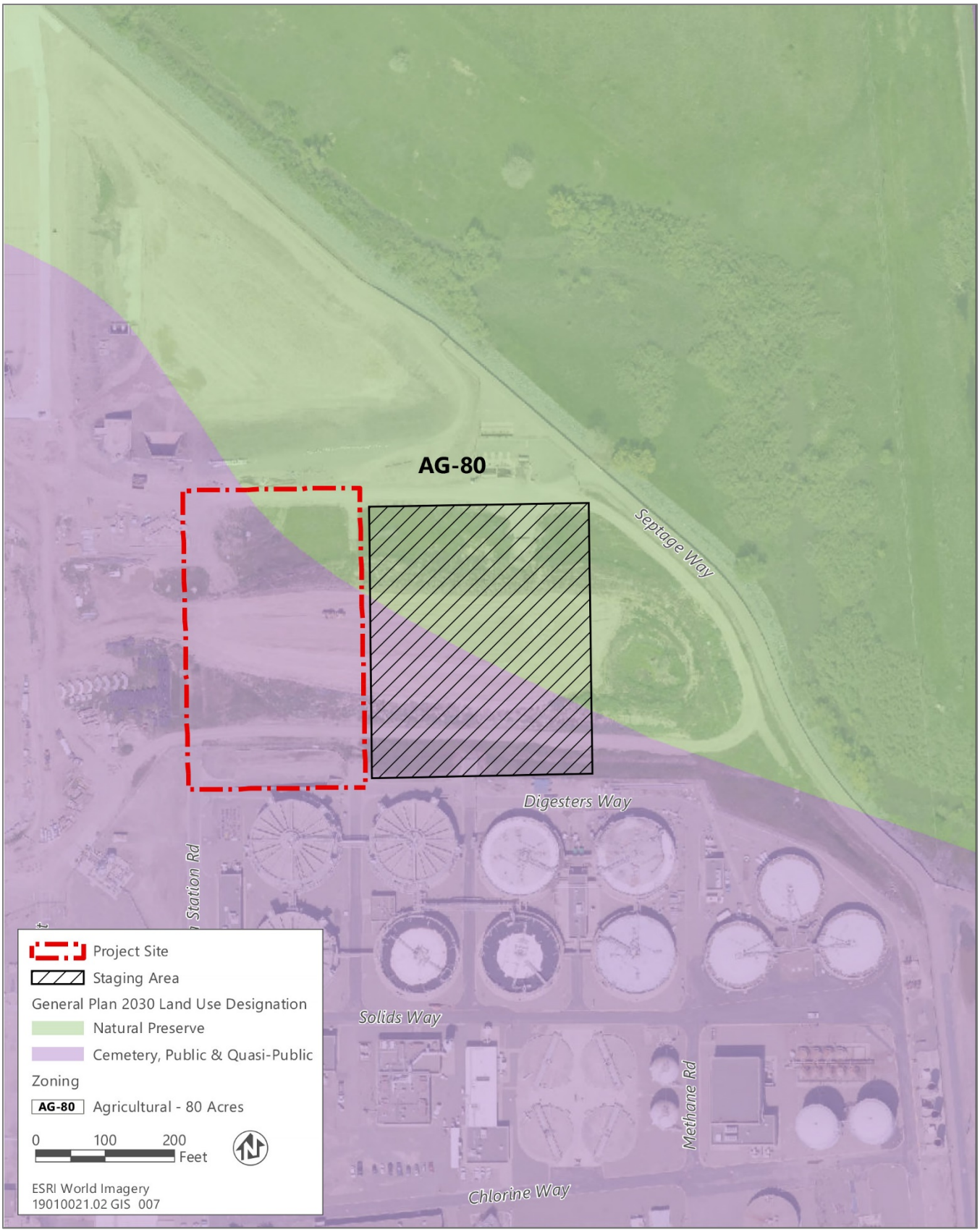
The project site is within the SRWTP property in Sacramento County. Surrounding land uses include the SRWTP facilities and the Bufferlands. The project site and staging area are currently vacant disturbed land immediately north of the existing digesters.

The Sacramento County General Plan designates the project site as Cemetery, Public & Quasi-Public and Natural Preserve (Figure 2.11-1). The Cemetery, Public & Quasi-Public designation allows for public uses such as education, solid and liquid waste disposal, and cemeteries. The Natural Preserve designation identifies critical natural habitat for priority resource protection. This designation includes riparian Valley Oak woodland and permanent or seasonal marshes with outstanding wildlife value (Sacramento County 2020b). The project site and surrounding area are zoned as Agricultural (AG-80). The Agricultural zoning designation promotes the long-term agricultural use and discourage the premature and unnecessary conversion of agricultural land to urban uses. Allowable uses include agriculture, one single-family residence, and government and local agency buildings and uses (Sacramento County 2015).

2.11.2 Discussion

a) Physically divide an established community?

No impact. The project site is located within an existing wastewater treatment plant site and construction of the biogeneration facility would be compatible with the surrounding wastewater treatment facilities. Therefore, the project would not divide the established community. There would be **no impact**.



Source: Data downloaded from Sacramento County in 2018

Figure 2.11-1 General Plan Land Use Designation and Zoning

b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Less-than-significant impact. The proposed project would be consistent with the Cemetery, Public & Quasi-Public land use designation that applies to the majority of the project site and the southern half of the staging area and the AG-80 zoning designation, which allows for government and local agency buildings and uses; however, the new biogeneration facility would not be consistent with the Natural Preserve land use designation. When special districts, including Regional San, are conducting governmental activities they are exempt from local government plans, policies, and ordinances. Nonetheless, Regional San voluntarily seeks to operate consistently with local governance to the extent feasible. While the proposed project would not be consistent with the land use designation for the northeast corner of the project site, these designations do not reflect the current conditions at the site. The northeast corner of the site is contained within a larger parcel that extends north of the SRWTP site into the surrounding Bufferlands where the land use designation is consistent with the land management practices employed throughout the Bufferlands. While there are several trees east of the staging area, no trees would be removed by the project. There is no riparian Valley Oak woodland or permanent or seasonal marshes on-site, the preservation of which is the objective of the Natural Preserve land use designation. Therefore, the project site and staging area do not contain any of the sensitive resources (i.e., riparian habitat, seasonal marshes) that are protected by the Natural Preserve land use designation. While the project would not be consistent with the land use designation, the project would not result in any changes to the existing land use that would conflict with the existing land use designations for the project site. This impact would be **less than significant**.

2.12 MINERAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. Mineral Resources.				
Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

2.12.1 Environmental Setting

Mineral resources in Sacramento County include sand, gravel, clay, gold, silver, peat, topsoil, lignite, natural gas, and petroleum. The principal resources that are in production are aggregate (sand and gravel) and natural gas (Sacramento County 1993).

According to the Sacramento County General Plan Conservation Element, no significant mineral deposits have been identified on the project site (Sacramento County 1993).

2.12.2 Discussion

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

No impact. The project site is within the SRWTP property and is not located within an area of known mineral resources. In addition, the project site is not used for or zoned as a mineral resource area. Therefore, construction of the project would not affect the availability of known mineral resources that would be of value to the region and the residents of the state, and **no impact** would occur.

b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

No impact. There are no locally important mineral resource recovery sites delineated on a local general plan, specific plan, or other land use plan that include the project site. No significant mineral deposits have been identified on the project site by the Sacramento County General Plan (Sacramento County 1993). Therefore, development of the project would have no effect on the availability of known mineral resources, and **no impact** would occur.

2.13 NOISE

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII.Noise. Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards?	☐	☐	☒	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐

2.13.1 Environmental Setting

ACOUSTIC FUNDAMENTALS

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receiver, and the propagation path between the two. Sound is the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a human ear. Noise is defined as loud, unexpected, annoying, or unwanted sound. As sound travels through the atmosphere from the source to the receiver, noise levels attenuate (i.e., decrease) depending on a variety of factors, including geometric spreading (i.e., spherical or cylindrical spreading), ground absorption (i.e., hard versus soft sites), atmospheric conditions (e.g., wind direction and speed, air temperature, humidity, turbulence), and shielding by natural or human-made features.

The amplitude of pressure waves generated by a sound source determines the loudness of that source, also called the sound pressure level (SPL). SPL is most commonly described by using decibels (dB) because this logarithmic unit best corresponds to the way the human ear interprets sound pressures. However, the decibel scale does not adequately characterize how humans perceive noise because the human ear is not equally sensitive to loudness at all frequencies (i.e., pitch) in the audible spectrum. To approximate the response of the human ear, sound levels of individual frequency bands are weighted, depending on the human sensitivity to those frequencies. Then, an "A-weighted" sound level (expressed in units of A-weighted decibels) can be computed based on this information. All sound levels discussed in this section are expressed in A-weighted decibels.

Because decibels are logarithmic units, SPLs expressed in dB cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3-dB increase. In typical noisy environments, changes in noise of 1–2 dB are generally not perceptible. However, it is widely accepted that people can begin to detect sound level increases of 3-dB in typical noisy environments. Further, a 5-dB increase is generally perceived as a distinctly noticeable increase, and a 10-dB increase is generally perceived as a doubling of loudness (Caltrans 2013:2-10).

COMMON NOISE DESCRIPTORS

The intensity of environmental noise fluctuates over time, and several different descriptors of time-averaged noise levels are used. The selection of a proper noise descriptor for a specific source depends on the spatial and temporal distribution, duration, and fluctuation of both the noise source and the environment. The noise descriptors used in this chapter include:

- Equivalent Continuous Sound Level (L_{eq}): L_{eq} represents an average of the sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level containing the same acoustical energy as the time-varying sound level that occurs during the same period (Caltrans 2013:2-48). For instance, the 1-hour equivalent sound level, also referred to as the hourly L_{eq}, is the energy average of sound levels occurring during a 1-hour period;
- Maximum Noise Level (L_{max}): The highest instantaneous noise level during a specified time-period;
- Minimum Noise Level (L_{min}): The lowest instantaneous noise level during a specified time-period;
- Day-Night Noise Level (L_{dn}): The 24-hour L_{eq} with a 10-dB penalty applied to sounds occurring during the noise-sensitive hours from 10:00 p.m. to 7:00 a.m., which are typically reserved for sleeping. The L_{dn} and CNEL (below) are the most common noise descriptors used for transportation noise considerations or other noise sources that may occur both during daytime and more noise-sensitive nighttime (during typical relaxation and sleep) hours when background noise is typically less; and
- Community Noise Equivalent Level (CNEL): CNEL is the energy average of the A-weighted sound levels occurring over a 24-hour period, with a 10-dB penalty applied to sound levels occurring during the nighttime hours between 10:00 p.m. and 7:00 a.m. and a 5-dB penalty applied to the sound levels occurring during evening hours between 7:00 p.m. and 10:00 p.m. (Caltrans 2013:2-48).

GROUND VIBRATION

Vibration is the periodic oscillation of a medium or object with respect to a given reference point. Groundborne vibration is vibration of and through the ground. Sources of ground-borne of vibration include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) and those introduced by human activity (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, (e.g., operating factory machinery) or transient in nature (e.g., explosions).

Groundborne vibration amplitudes are commonly expressed in peak particle velocity (PPV) or root-mean-square (RMS) vibration velocity. PPV and RMS vibration velocity are normally described in inches per second (in/sec) but can also be expressed in decibel notation (VdB), which is used mainly in evaluating human response to vibration.

EXISTING NOISE ENVIRONMENT

The project site is at the SRWTP facility in the unincorporated area of Sacramento County. The project site would be located within the SRWTP site in a previously disturbed area bordered by Digesters Way/Oregon Trail to the south and Septage Way to the north (Chapter 1, "Project Description," Figure 1-2).

The existing noise environment in the project vicinity is primarily influenced by transportation noise from vehicle traffic on the roadway systems (e.g., Laguna Boulevard, Franklin Boulevard, I-5, State Route 99). Other noise sources that contribute to the existing noise environment include existing activities at the SRWTP. These include heavy duty equipment such as tractors, maintenance vehicles, and employee vehicles, as well as stationary noise sources associated with pumps and motors that run the various processes at the SRWTP.

An ambient noise survey was conducted on March 7, 2013, as part of the noise analysis for the EchoWater Project Draft EIR (Regional San 2014:4.11-12 and 4.11-13). The purpose of the survey was to characterize existing noise conditions at different parts of the SRWTP facility in the project vicinity. Several short-term noise measurements were collected measure noise levels on the SRWTP facility within its vicinity. The noise levels measured at a location nearest the site of the proposed biogas project are shown in Table 2.13-1.

Table 2.13-1 Summary of Existing Ambient Noise Measurements

Start (Date/Time)	Stop (Date/Time)	A-Weighted Sound Level (dBA)		
		L_{eq}	L_{eq}	L_{eq}
March 7, 2013/9:00 A.M.	March 7, 2013/9:15 A.M.	51	64	47

Source: Data collected by Ascent Environmental in 2013 and presented in the Regional San EchoWater Draft EIR (Regional San 2014:4.11-13)

These noise level measurements were taken in accordance with American National Standards Institute (ANSI) standards using a Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meter (SLM). The SLM was calibrated before and after use with an LDL Model CAL200 acoustical calibrator. The equipment used meets all pertinent specifications of the ANSI for Type 1 SLMs (ANSI S1.4-1983[R2006]). Meteorological conditions during the measurement period were adequate for reliable noise measurements, with clear blue skies, temperatures ranging from 60 °F to 70 °F, and light winds averaging 1 mile per hour.

The noise environment at the project site has not changed substantially since these measurements were collected in 2013, although it does experience construction noise associated with development of the EchoWater Project.

NOISE-SENSITIVE RECEPTORS

There are no residential land uses, schools, or other noise-sensitive receptors adjacent to the project site or staging area. The nearest residential area to the project site lies east of Franklin Boulevard, which is approximately 4,740 feet away.

2.13.2 Regulatory Setting

FEDERAL

Federal Transit Administration

To address the human response to ground vibration, the Federal Transit Administration has set forth guidelines for maximum-acceptable vibration criteria for different types of land uses. These guidelines are presented in Table 2.13-2.

Table 2.13-2 Ground-Borne Vibration Impact Criteria for General Assessment

Land Use Category	GBV Impact Levels (VdB re 1 microinch/second)		
	Frequent Events[1]	Occasional Events[2]	Infrequent Events[3]
Category 1: Buildings where vibration would interfere with interior operations.	65 [4]	65 [4]	65 [4]
Category 2: Residences and buildings where people normally sleep.	72	75	80
Category 3: Institutional land uses with primarily daytime uses.	75	78	83

Notes: GBV = ground-borne vibration; VdB = vibration decibels referenced to 1 microinch per second and based on the root mean square velocity amplitude.

[1] "Frequent events" is defined as more than 70 vibration events of the same source per day.

[2] "Occasional events" is defined as between 30 and 70 vibration events of the same source per day.

[3] "Infrequent events" is defined as fewer than 30 vibration events of the same source per day.

[4] This criterion is based on levels that are acceptable for most moderately sensitive equipment, such as optical microscopes. Vibration-sensitive manufacturing or research would require detailed evaluation to define acceptable vibration levels.

Source: FTA 2018

STATE

California Department of Transportation

In 2013, the California Department of Transportation (Caltrans) published the Transportation and Construction Vibration Manual (Caltrans 2013).

The manual provides general guidance on vibration issues associated with construction and operation of projects in relation to human perception and structural damage. Table 2.13-3 presents recommendations for levels of vibration that could result in damage to structures exposed to continuous vibration.

Table 2.13-3 Caltrans Recommendations Regarding Levels of Vibration Exposure

PPV (in/sec)	Effect on Buildings
0.4–0.6	Architectural damage and possible minor structural damage
0.2	Risk of architectural damage to normal dwelling houses
0.1	Virtually no risk of architectural damage to normal buildings
0.08	Recommended upper limit of vibration to which ruins and ancient monuments should be subjected
0.006–0.019	Vibration unlikely to cause damage of any type

Notes: PPV= peak particle velocity; in/sec = inches per second.

Source: Caltrans 2013

LOCAL

The project site is located in unincorporated Sacramento County; therefore, the County's policies pertaining to noise are germane. Because project construction noise could affect existing land uses in Elk Grove, policies in the City of Elk Grove General Plan are also considered.

Sacramento County General Plan

The Noise Element of the *Sacramento County General Plan* (Sacramento County 2017) contains the following policies and standards related to noise that may be applicable to the project:

- Policy NO-6. Where a project would consist of or include non-transportation noise sources, the noise generation of those sources shall be mitigated so as not exceed the interior and exterior noise level standards of Table 2 [presented as Table 2.13-4] at existing noise-sensitive areas in the project vicinity.
- Policy NO-7. The "last use there" shall be responsible for noise mitigation. However, if a noise-generating use is proposed adjacent to lands zoned for uses which may have sensitivity to noise, then the noise generating use shall be responsible for mitigating its noise generation to a state of compliance with the Table 3 [presented as Table 2.13-4] standards at the property line of the generating use in anticipation of the future neighboring development.

In addition to the policies listed above, Sacramento County has established noise standards for land uses affected by non-transportation noise (Table 2.13-4).

Table 2.13-4 Non-Transportation Noise Standards Median (L_{50})[1]/Maximum (L_{max})[2]

Receiving Land Use	Outdoor Area[3]		Interior[4]
	Daytime	Nighttime	Day/Night
All Residential	55/75	50/70	35/55
Transient Lodging[5]	55/75	-	35/55
Hospitals & Nursing Homes[6,7]	55/75	-	35/55
Theaters & Auditoriums[7]	-	-	30/50
Churches, Meeting Halls, Schools, Libraries, etc.[7]	55/75	-	35/60
Office Buildings[7]	60/75	-	45/65
Commercial Buildings[7]	-	-	45/65
Playgrounds, Parks, etc.[7]	65/75	-	-
Industry[7]	60/80	-	50/70

Notes: L_{50}= noise level that is exceeded 50 percent of the time during the specified duration; L_{max}= the maximum instantaneous noise level

[1] Where median (L_{50}) noise level data is not available for a particular noise source, average (L_{eq}) values may be substituted for the standards of this table provided the noise source in question operates for at least 30 minutes of an hour. If the source in question operates less than 30 minutes per hour, then the maximum noise level standards shown would apply.

[2] Standards in this table shall be reduced by 5 dB for sounds consisting primarily of speech or music, and for recurring impulsive sounds. If the existing ambient noise level exceeds the standards of this table, then the noise level standards shall be increased at 5 dB increments to encompass the ambient.

[3] The primary outdoor activity area associated with any given land use at which noise-sensitivity exists and the location at which the County's exterior noise level standards are applied.

[4] Interior noise level standards are applied within noise-sensitive areas of the various land uses, with windows and doors in the closed positions.

[5] Outdoor activity areas of transient lodging facilities are not commonly used during nighttime hours.

[6] Hospitals are often noise-generating uses. The exterior noise level standards for hospitals are applicable only at clearly identified areas designated for outdoor relaxation by either hospital staff or patients.

[7] The outdoor activity areas of these uses (if any) are not typically utilized during nighttime hours.

Source: Sacramento County 2017

Sacramento County Code

Section 6.68.070 of the Sacramento County Code (Sacramento County 2020c) contains exterior noise standards for specific zoning districts (Table 2.13-5).

Table 2.13-5 Exterior Noise Standards

Noise Area	County Zoning Districts	Time Period	Exterior Noise Standard
1	RE-1, RD-1, RE-2, RD-2, RE-3, RD-3, RD-4, R-1-A, RD-5, R-2, RD-10, R-2A, RD-20, R-3, R-D-30, RD-40, RM-1, RM-2, A-1-B, AR-1, A-2, AR-2, A-5, AR-5	7:00 a.m.-10:00 p.m.	55 dB
		10:00 p.m.-7:00 a.m.	50 dB

Source: Sacramento County 2020c (SCC 490 Section 2, 1981; SCC 254 Section 1, 1976)

Section 6.68.090 of the Sacramento County Code provides the following exemption to the exterior noise standards:

> Noise sources associated with construction, repair, remodeling, demolition, paving or grading of any real property, provided said activities do not take place between the hours of 8:00 p.m. and 6:00 a.m. on weekdays and Friday commencing at 8:00 p.m. through and including 7:00 a.m. on Saturday; Saturdays commencing at 8:00 p.m. through and including 7:00 a.m. on the next following Sunday and on each Sunday after the hour of 8:00 p.m. Provided, however, when an unforeseen or unavoidable condition occurs during a construction project and the nature of the project necessitates that work in process be continued until a specific phase is completed, the contractor or owner shall be allowed to continue work after 8:00 p.m. and to

operate machinery and equipment necessary until completion of the specific work in progress can be brought to conclusion under conditions which will not jeopardize inspection acceptance or create undue financial hardships for the contractor or owner (SCC 254 § 1, 1976).

City of Elk Grove General Plan

The SRWTP site is adjacent to residences that are located within the City of Elk Grove. Chapter 8 of the City of Elk Grove General Plan (City of Elk Grove 2019) includes the following noise policies that are applicable to the project:

- **Policy N-2-1.** Noise created by new proposed non-transportation noise sources shall be mitigated so as not to exceed the noise level standards of Table 8-4 [presented as Table 2.13-6], as measured immediately within the property line of lands designated for noise-sensitive uses.
- **Policy N-2-2.** The following criteria shall be used as CEQA significance thresholds for transportation and stationary noise sources:
  - Where existing ambient noise levels are less than 60 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a +5 dB L_{dn} increase in noise levels shall be considered significant; and
  - Where existing ambient noise levels range between 60 and 65 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a +3 dB L_{dn} increase in noise levels shall be considered significant; and
  - Where existing ambient noise levels are greater than 65 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a +1.5 dB L_{dn} increase in noise levels shall be considered significant. Public roadway improvements to alleviate traffic congestion and safety hazards shall utilize FHWA [Federal Highway Administration] noise standards to allow a reasonable dollar threshold per dwelling to be used in the evaluation and abatement of impacts.
  - The standards outlined in Table 8-4 [presented as Table 2.13-6] shall not apply to public projects to alleviate traffic congestion and safety hazards.

Table 2.13-6 Noise-Level Performance Standards for New Projects Affected by or Including Non-Transportation Noise Sources

Performance Standards for Stationary Sources	Noise Level Descriptor	Daytime (7:00 a.m. to 10:00 p.m.)	Nighttime (10:00 p.m. to 7:00 a.m.)
Performance Standards for Typical Stationary Noise Sources[a]	Hourly L_{eq}, dB	55[c,d]	45[c,d]
Performance Standards for Stationary Noise Sources Which Are Tonal, Impulsive, Repetitive, or Consist Primarily of Speech or Music[b]	Hourly L_{eq}, dB	50[c,d]	40[c,d]

* Applies to noise-sensitive land uses only.

[a] These standards will apply generally to noise sources that are not tonal, impulsive, or repetitive in nature. Typical noise sources in this category would include HVAC systems, cooling towers, fans, and blowers.

[b] These standards apply to noises which are tonal in nature, impulsive, repetitive, or which consist primarily of speech or music (e.g., humming sounds, outdoor speaker systems). Typical noise sources in this category include pile drivers, drive-through speaker boxes, punch presses, steam valves, and transformer stations. HVAC/pool equipment are exempt from these standards.

[c] These noise levels do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwelling). HVAC/pool equipment are exempt from these standards.

[d] The City may impose noise level standards which are more or less restrictive based upon determination of existing low or high ambient noise levels.

Source: City of Elk Grove 2019:8-58

City of Elk Grove Municipal Code

Section 6.32.080 of the Elk Grove Municipal Code contains exterior noise standards for sensitive receptors, outlined in Table 6.32-1 [presented as Table 2.13-7 below]. The metric of these standards is L_{eq} because they are identical to the noise level performance standards included in the General Plan.

Table 2.13-7 Exterior Noise Standards for Sensitive Receptors

	7:00 am to 10:00 pm	10:00 pm to 7:00 am
Stationary noise sources, generally	55 dB	45 dB
Stationary noise sources which are tonal, impulsive, repetitive, or consist primarily of speech or music	50 dB	40 dB

Source: Section 6.32.080 of the Elk Grove Municipal Code

The City of Elk Grove uses the same construction noise exemptions as Sacramento County, as indicated above under "Sacramento County Code."

2.13.3 Discussion

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards?

Less-than-significant impact. Construction of the project would last between 18 and 24 months. Typical construction activities would include earthwork such as grading, excavation, trenching, backfilling, hauling, and compaction. Additionally, underground piping and utilities would be installed. Paving, lighting, drainage, and reinforced structures, including the new building, would be constructed. Construction equipment would involve the use of heavy equipment, including excavators, dozers, compactors, graders, and backhoes.

Typical construction work hours would be Monday through Friday from 7:00 a.m. to 7:00 p.m. No nighttime work is anticipated. Equipment, material, and vehicle staging would be accommodated immediately east of the project site, as shown in Figure 1-2 in Chapter 1, "Project Description."

The loudest pieces of equipment that would be used during construction would include excavators, pavers, and dozers, all of which individually generate 85 dB L_{eq} at 50 feet (FHWA 2006:3). Calculations assumed simultaneous operation of three pieces of heavy equipment close to each other at the boundary of the project site closest to residential areas, 4,740 feet (0.9 mile) to the east. It was also assumed that building walls would provide 24 dB of attenuation for interior noise levels at the receptor (EPA 1971:11).

Based on detailed calculations consistent with guidance in FHWA's Roadway Construction Noise Model User's Guide (FHWA 2006) and presented in Appendix B, exterior noise exposure at the nearest residence could reach up to 47 dB L_{eq}. Given that buildings typically provide an exterior-to-interior reduction of 24 dB (EPA 1971:11), interior noise levels at this receptor would not exceed 23 dB L_{eq}. These modeled noise levels would not exceed the City of Elk Grove's daytime noise standard for outdoor areas of 55 dB L_{eq} (7:00 a.m. to 10:00 p.m.) as established in Section 6.32.080 of the Elk Grove Municipal Code (City of Elk Grove 2020). Additionally, no nighttime work is anticipated, and typical construction work hours would be Monday through Friday from 7:00 a.m. to 7:00 p.m.

Operation of the project would not change the operating hours at the existing SRWTP, which operates continuously 24 hours per day, every day. Routine maintenance would occur for all new facilities and would generally include regular preventative maintenance and inspections and adjustments. Maintenance would occur periodically or annually depending on the specific facility and would be similar to existing maintenance activities. Because the project would result in the long-term employment of no more than ten additional full-time employees and the increase in associated vehicle trips and traffic noise would be nominal.

In summary, because construction and operation of the project would not result in the exposure of noise-sensitive receptors to noise levels that exceed applicable local noise standards, this impact would be **less than significant**.

b) Generation of excessive groundborne vibration or groundborne noise levels?

Less-than-significant impact. As described in Chapter 1, "Project Description," project-related construction would not involve the use of ground vibration–intensive activities, such as pile driving or blasting that typically generate the highest vibration levels and are, therefore, of greatest concern when evaluating construction-related vibration impacts. Pieces of equipment that generate lower levels of ground vibration such as excavators, front-end loaders, compactors, and trucks would be used during construction. However, these types of equipment do not generate excessive vibration that could result in off-site effects. Because no pile driving or blasting would occur during project construction, construction-generated vibration would not result in adverse vibration effects to off-site receptors, buildings, or infrastructure. Therefore, this impact would be **less than significant**.

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Less-than-significant impact. The nearest airport to the project site is the Borges-Clarksburg Airport, a small private airport, located approximately 2.5 miles west of the project site. Sacramento Executive Airport is the next closest airport and is located approximately 4.2 miles north of the project site. The project site is not within 2 miles of an airport or within an area subject to an airport land use plan. Therefore, the proposed project would not result in the exposure of people to excessive noise levels associated with airport activity. This impact would be **less than significant**.

2.14 POPULATION AND HOUSING

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. Population and Housing.				
Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

2.14.1 Environmental Setting

According to the U.S. Census Bureau, in 2019 the County of Sacramento's population totaled 1,552,058, and the county had 570,752 housing units (U.S. Census Bureau 2019). The project would be within the SRWTP site and there is no housing within the project site or surrounding area.

2.14.2 Discussion

a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

No impact. The proposed project does not include the construction of new homes or businesses nor does it extend roads or infrastructure that would lead to population growth. The project would construct a new biogeneration facility but would not increase the capacity of the SRWTP. Therefore, there would be **no impact** on population growth.

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No impact. Implementation of the proposed project would not require the removal of any homes causing the construction of replacement housing. Currently, there are no houses within the project site or staging area and the project would not displace any adjacent residences. No people would be displaced due to implementation of the project. There would be **no impact**.

2.15 PUBLIC SERVICES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. Public Services.				
Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

2.15.1 Environmental Setting

FIRE PROTECTION SERVICES

The Cosumnes Fire Department provides fire protection services to the project site. The nearest fire station is Fire Station #75 located approximately 2.7 miles southwest of the project site.

POLICE PROTECTION SERVICES

The Sacramento County Sheriff's Department provides law enforcement services to the project site. The Sacramento County Sheriff's Department provides specialized law enforcement to the county and local police protection to unincorporated areas. The project site is within the Central Division (Sacramento County Sheriff's Office 2021).

SCHOOLS

The nearest schools to the project site are John D Sloat Elementary School and Edward Kemble Elementary School, both of which are 1.4 miles away.

PARKS AND OTHER PUBLIC FACILITIES

No public access is provided to the SRWTP site and there are no recreation facilities on-site. The nearest park is Willie Caston Park located approximately 1 mile from the project site. The park is 6.3 acres and includes picnic areas, playgrounds, and a trail. The park is maintained by the City of Sacramento (City of Sacramento 2020).

2.15.2 Discussion

a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

FIRE PROTECTION

No impact. Implementation of the project would not increase the demand for fire protection services because the project would expand the existing facilities at the SRWTP and would not generate new residences or businesses, which is the driving factor for fire protection services. Because the project would not increase demand for fire protection services, no construction of new or expanded fire service facilities would be required. Therefore, the project would have **no impact** on fire protection services.

POLICE PROTECTION

No impact. Implementation of the project would not increase demand for police protection services because the project would not generate new residences or businesses, which is the driving factor for police protection services. Because the project would not increase demand for police protection services, no construction of new or expanded police service facilities would be required. Therefore, the project would have **no impact** on police services.

SCHOOLS

No impact. The project would not provide any new housing that would generate new students in the community nor result in an increase in employment opportunities that could indirectly contribute new students to the local school district. Therefore, the project would have **no impact** on school services and facilities.

PARKS

No impact. The project would not result in any additional residents/employees that would increase the demand for recreational facilities, necessitating new or expanded park facilities. Therefore, the project would have **no impact** on parks.

OTHER PUBLIC FACILITIES

No impact. The project would be an addition to the existing SRWTP, which is addressed throughout this Initial Study. No other public facilities exist in the project vicinity that could be affected by implementation of the project. Therefore, the project would have **no impact** on other public facilities.

2.16 RECREATION

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. Recreation.				
Would the project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

2.16.1 Environmental Setting

No public access is provided to the SRWTP site and there are no recreation facilities on-site. The nearest park is Willie Caston Park located approximately 1 mile from the project site. The park is 6.3 acres and includes picnic areas, playgrounds, and a trail. The park is maintained by the City of Sacramento (City of Sacramento 2020).

2.16.2 Discussion

a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

No impact. The project would not include any new housing or businesses that would increase the population in the project vicinity. In addition, the proposed project would not increase the capacity of the SRWTP and would have no effect on population growth or increase demand for recreation facilities or programs. Therefore, use of existing neighborhood and regional parks or other recreational facilities would not change as a result of the project. Because the project would not result in the physical deterioration of public recreational facilities, no impact would occur.

b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

No impact. The project would not require construction of new homes or infrastructure, including parks and recreational facilities. No impact would occur.

2.17 TRANSPORTATION

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. Transportation.				
Would the project:				
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	☐	☐	☒	☐
b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☒	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
d) Result in inadequate emergency access?	☐	☐	☒	☐

2.17.1 Environmental Setting

EXISTING ROADWAYS

I-5 provides primary regional access in the project vicinity. Access to the project site and staging area would be provided via Laguna Boulevard to Dwight Road, then to Central Street, which connects to Septage Way. Septage Way is a paved roadway within the SRWTP site and is not a public roadway.

I-5 is a north-south interstate highway west of the project site. I-5 extends through Sacramento to the north and connects the region to Stockton and the San Joaquin Valley to the south. In the project vicinity, I-5 is a six-lane roadway with an interchange at Laguna Boulevard.

Laguna Boulevard is an east-west arterial roadway that connects to I-5 to the west and State Route 99 to the east. In the project vicinity, Laguna Boulevard is a six-lane roadway with a posted speed limit of 45 miles per hour.

Dwight Road is a north-south collector roadway that connects the SRWTP site to Laguna Boulevard. It is a four-lane roadway with a center two-way left-turn lane.

Central Street is a local street providing north-south access. Central Street is two-lanes and extends from Dwight Road to the SRWTP site.

EXISTING TRANSIT SERVICE

The City of Elk Grove Transit Services and Sacramento Regional Transit District provide fixed-route transit service to the project vicinity. The nearest bus stop to the project site is located at the Laguna Boulevard/Dwight Road intersection.

EXISTING BICYCLE AND PEDESTRIAN FACILITIES

Bicycle facilities can be classified into one of the following three categories:

- Class I Bike Path – Off-street bike paths within exclusive right-of-way.
- Class II Bike Lane – Striped on-road bike lanes adjacent to the outside travel lane on preferred corridors for biking.

- Class III Bike Route – Shared on-road facility, usually delineated by signage.

Bicycle facilities in the project vicinity include Class II bike lanes located along Laguna Boulevard and Dwight Road.

2.17.2 Discussion

a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

Less-than-significant impact. Project construction could temporarily interfere with existing vehicle, transit, bicycle, and pedestrian circulation as it would result in a temporary increase of vehicles on surrounding roadways attributed to worker commutes and materials delivery, which may result in additional traffic or congestion. Operation of the project would result in a small increase in long-term vehicle trips associated with 10 new employees and increased maintenance activity. While project operation would result in a small increase in vehicle trips, it would not increase the transit, pedestrian, or bicycle use in comparison to the existing conditions. Project construction would be temporary and would not require road closures, and operation of the project would result in a small increase in long-term vehicle trips. Therefore, the project would not conflict with programs, plans, ordinances, or policies related to circulation. This impact would be **less than significant**.

b) Conflict or be inconsistent with CEQA Guidelines section 15064.3(b), which pertains to vehicle miles travelled?

Less-than-significant impact. Temporary construction activities would result in an increase in vehicle trips associated with worker commutes and materials delivery. However, these additional trips would only occur during the 18- to 24-month construction period. During operation, there would be a small increase in vehicle trips associated with the 10 new employees and increased maintenance activity. However, the project would generate fewer than 110 trips per day which is generally assumed to cause a less-than-significant transportation impact, as described in the state's Technical Advisory on Evaluating Transportation Impacts (OPR 2018). Because the project would not change land uses in the project vicinity or increase the amount of development projected for the area, the project would be consistent with the population growth and vehicle miles travelled projections in regional and local plans. This impact would be **less than significant**.

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less-than-significant impact. The project would not require the construction, re-design, or alteration of any public roadways. The ingress and egress for the project site and staging area would be designed consistent with County design and safety standards. The project would not result in any geometric design features (e.g., sharp curves or dangerous intersections) therefore, impacts related to traffic hazards would be **less than significant**.

d) Result in inadequate emergency access?

Less-than-significant impact. As discussed above in Section 2.9, "Hazards and Hazardous Materials," major arterials in the project vicinity are designated as evacuation routes. Use of area roadways for construction equipment could temporarily affect accessibility of roadways to emergency vehicles. However, implementation of environmental commitment EC-3 in Chapter 1, "Project Description," would avoid potential interference with emergency access because it would require the emergency access and access for local land uses be maintained. This impact would be **less than significant**.

2.18 TRIBAL CULTURAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII. Tribal Cultural Resources.				
Has a California Native American Tribe requested consultation in accordance with Public Resources Code section 21080.3.1(b)?		☒ Yes		☐ No
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?	☐	☐	☐	☒
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	☒	☐	☐	☐

2.18.1 Environmental Setting

The project site and surrounding area is historically attributed to the Plains Miwok, a subgroup of the Eastern Miwok. Historic maps and accounts of early travelers to the Sacramento Valley testify that the valley consisted of open grasslands and occasional oak groves, with abundant elk. The area was generally wet in winter and exceedingly dry in summer. Native Americans typically situated their larger, permanent settlements on high ground along the region's major rivers, such as the Cosumnes, to the east of the project site. The Plains Miwok are part of the larger Eastern Miwok language group who form one of the two major divisions of the Miwokan subgroup of Utian speakers. Plains Miwok speakers lived in the Central Valley along the Sacramento, Cosumnes, and Mokelumne Rivers, and built their homes on high ground, with principal villages concentrated along major drainages (Regional San 2020a:16).

As with other California Native American groups, the California Gold Rush of 1849 had a devastating effect on the Plains Miwok. The flood of miners that came to the area in search of gold brought diseases with them that decimated the Native populations. Those who survived were subjected to violence and prejudice at the hands of the miners, and the Plains Miwok eventually were pushed out of their ancestral territory. Although this contact with settlers had a profound negative impact on the Native American population through disease and violent actions, the Plains Miwok people survived and continue to maintain strong communities and action-oriented organizations (Regional San 2020a:16).

TRIBAL CONSULTATION

Under PRC section 21080.3.1 and 21082.3, Regional San must consult with tribes traditionally and culturally affiliated with the project site that have requested formal notification and responded with a request for consultation. The parties must consult in good faith. Consultation is deemed concluded when the parties agree to measures to mitigate or avoid a significant effect on a tribal cultural resource when one is present or when a party concludes that mutual agreement cannot be reached. Mitigation measures agreed on during the consultation process must be recommended for inclusion in the environmental document.

On November 5, 2020, Regional San sent notification letters that the project was being addressed under CEQA, as required by PRC Section 21080.3.1, to the three Native American tribes that had previously requested such notifications for projects in Sacramento County, Wilton Rancheria, United Auburn Indian Community (UAIC), and Ione Band of Miwok Indians. Wilton Rancheria responded requesting consultation. Consultation with Wilton Rancheria is ongoing, and while the specific details of consultation are confidential pursuant to California law, no tribal cultural resources have been identified within the project site. However, the area is sensitive for tribal cultural resources and mitigation measures were requested by UAIC and Wilton Rancheria.

A record search of NAHC Sacred Lands File (SLF) was completed on October 26, 2020. The NAHC search indicated that the SLF was negative for the presence of Native American resources within the project site.

2.18.2 Discussion

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?

No impact. The project site and staging area contain no tribal cultural resources that are listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources. Therefore, there would be **no impact**.

b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

Potentially significant impact. Although the NAHC SLF was negative and neither UAIC nor Wilton Rancheria identified a tribal cultural resource on the project site, consultation with Wilton Rancheria revealed that the project site is considered culturally sensitive. Therefore, it is possible that yet-undiscovered tribal cultural resources could be encountered or damaged during ground-disturbing construction activities. Implementation of environmental commitment EC-1 in Chapter 1, "Project Description," would reduce potential impacts to tribal cultural resources by training workers to properly handle inadvertent discovery of sensitive resources; however, there would still be the potential for inadvertent damage to occur to tribal cultural resources. This impact would be **potentially significant** and this issue will be analyzed further in the EIR.

2.19 UTILITIES AND SERVICE SYSTEMS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIX. Utilities and Service Systems.				
Would the project:				
a) Require or result in the relocation or construction of construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunication facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
c) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?	☐	☐	☒	☐
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

2.19.1 Environmental Setting

WASTEWATER

Wastewater service for the project site is provided by Regional San. Regional San owns and operates the regional wastewater conveyance system and the SRWTP, and provides wastewater conveyance and treatment services to residential, industrial, and commercial customers throughout unincorporated Sacramento County; the cities of Citrus Heights, Elk Grove, Folsom, Rancho Cordova, Sacramento, and West Sacramento; and the communities of Courtland and Walnut Grove. The wastewater treatment process generates a variety of solids including primary sludge, grit, screenings (i.e., large debris), return activated sludge, and waste activated sludge. Regional San feeds blended primary sludge and thickened waste activated sludge to six primary anaerobic digesters and two blending digesters, which produce biogas. The SRWTP is permitted to discharge an average dry weather flow (ADWF) of 181 mgd to the Sacramento River.

As described above in Section 2.10, "Hydrology and Water Quality," wastewater from the SRWTP site is captured by the general sanitary sewer drainage system, which is routed to the SRWTP headworks for treatment and discharged into the Sacramento River.

WATER

Drinking water, or potable water, is used at the SRWTP in all domestic water supplies (i.e., sinks, toilets, hot water heaters, eyewashes, and safety showers). Potable water can also be used for fire protection when non-potable water and high-pressure reclaimed water is not available. Potable water is supplied to the SRWTP by two independent sources: one from the north from the City of Sacramento and one from the south from the Sacramento County Water Agency's Zone 40 water distribution system.

Non-potable water is non-drinkable water. It is used throughout the SRWTP for a variety of cleaning and flushing uses including for pump seals, cooling water, utility stations, and chemical bath water. Non-potable water is produced through treatment processes at the SRWTP, including the Title 22 Water Reclamation Facility.

STORM DRAINAGE

As described above in Section 2.10, "Hydrology and Water Quality," stormwater runoff from the SRWTP site is captured by the stormwater drainage system, which is routed to the SRWTP headworks for treatment and discharged into the Sacramento River.

SOLID WASTE

Solid waste at the SRWTP consists of trash generated by Regional San staff, yard waste from grounds maintenance, and grit and screenings generated by the wastewater treatment process. Refuse from the SRWTP site is hauled to the Sacramento County Kiefer Landfill. Kiefer Landfill is currently sized to satisfy all county landfill disposal needs through 2064.

Biosolids generated during wastewater treatment processes are managed through two strategies: 1) on-site disposal of biosolids to lined dedicated land disposal sites; and 2) recycling at the biosolids recycling facility. None of the biosolids produced by the SRWTP are disposed at a landfill.

NATURAL GAS AND ELECTRICITY

As discussed above in Section 2.6, "Energy," currently, Regional San delivers renewable biogas generated by the SRWTP wastewater treatment process to SMUD in exchange for electricity. Treated biogas resulting from digestion of solids at the SRWTP is captured and diverted to the Carson Cogen Plant or Cosumnes Power Plant. When used, the Carson Cogen Plant uses SRWTP biogas in a duct burner that, along with natural gas turbines, generates up to 100 MW of electricity for local residential and industrial use. More recently, SRWTP biogas is primarily sent to Cosumnes Power Plant, which uses the combination of natural gas and SRWTP biogas as fuel for turbines and produces up to 600 MW of power.

In addition to the Carson Cogen Plant, electrical power to the SRWTP is supplied by SMUD. SMUD has existing 69 kilovolt (kV) facilities on the project site and along East Access Road. SMUD also operates the nearby Pocket and Franklin electrical substations, complexes of transformers, and switches located to the north and south, respectively. These two major substations are supplied with 230,000 volts (230 kV) from the larger electrical grid and, along with the Carson Cogen Plant, supply electricity to the SRWTP. On average, the SRWTP requires up to 12 MW of electricity each day.

2.19.2 Discussion

a) Require or result in the relocation or construction of construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunication facilities, the construction or relocation of which could cause significant environmental effects?

Less-than-significant impact. The project would include construction of a new biogeneration facility, which would generate electricity and steam. The effects of construction of this new facility are addressed throughout this Initial Study. Construction and operation of the project would result in a small increase in generation of wastewater;

however, the increase would be small and would not require construction of new facilities or relocation of any existing facilities. The biogeneration facility would also result in an increase in electricity demand; however, the proposed project would produce between 10 and 15 MW of power, which would offset utility power purchases. Therefore, the project would not result in an increase in energy usage such that construction of new or expanded electrical facilities would be required. The project would not require removal or relocation of any electrical infrastructure. The project would not require construction of other new or expanded telecommunication facilities. The project would result in an increase in impervious surfaces but would not result in a substantial increase in runoff from the project site or require construction of new stormwater facilities outside of the project footprint. Stormwater runoff would continue to be captured and treated on-site and the project would not require expansion of the capacity of the stormwater drainage system. Therefore, the project would not require construction of new or expanded facilities beyond those discussed in this Initial Study. This impact would be **less than significant**.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

Less-than-significant impact. This project would result in a negligible increase in water supplies for construction and operation. However, the existing potable water system has adequate capacity to accommodate the increase in demand and is not expected to require capacity related upgrades. No new water supply entitlements, expanded entitlements, or facilities would be required. This impact would be **less than significant**.

c) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?

Less-than-significant impact. Wastewater generated by the proposed project would be captured by the general sanitary sewer drainage system, which is routed to the SRWTP for treatment. The SRWTP is currently permitted to discharge an ADWF of 181 mgd and has adequate capacity to serve the project. Therefore, this impact would be **less than significant**.

d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less-than-significant impact. During construction, there may be solid waste generated that would require disposal at a landfill. Spoil (soil and rock) excavated during construction would either be reused on-site for backfill or disposed of properly. Spoil not suitable for reuse would be temporarily stored at staging areas until characterized, and then hauled away to the proper disposal site (e.g., landfill). Additional solid waste would be generated by construction crews, which would need to be hauled off-site to be disposed. Operation of the project would generate a small amount of solid waste including waste from the digester conditioning system. Solid waste generated during construction and operation of the project would be delivered to Kiefer Landfill. This landfill is currently sized to satisfy all county landfill disposal needs through 2064. Therefore, the project would not generate solid waste in excess of state or local standards. This impact would be **less than significant**.

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Less-than-significant impact. The disposal of waste as described in item d) above would be in compliance with federal, state, and local laws and regulations related to solid waste. This impact would be **less than significant**.

2.20 WILDFIRE

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XX. Wildfire.				
Is the project located in or near state responsibility areas or lands classified as high fire hazard severity zones?		☐ Yes		☒ No
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒
c) Require the installation of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

2.20.1 Environmental Setting

As discussed above in Section 2.9, "Hazards and Hazardous Materials," the project site and staging area are located within the LRA and is not categorized as a "Very High" FHSZ (CAL FIRE 2021).

2.20.2 Discussion

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

Less-than-significant impact. See Section 2.9, "Hazards and Hazardous Materials" item f). Use of area roadways by construction vehicles could temporarily affect accessibility of roadways to emergency vehicles. However, implementation of environmental commitment EC-3 in Chapter 1, "Project Description," would avoid potential interference with emergency access because it would require the emergency access and access for local land uses be maintained. This impact would be **less than significant**.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

No impact. The project would not exacerbate wildfire risks or include construction of structures that would be inhabited. In addition, the project site and staging area are generally flat and are not located within a wildfire hazard zone. Therefore, the project would not exacerbate wildfire risks in the project vicinity. There would be no impact.

c) Require the installation of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

No impact. The project would include construction of a new biogeneration facility within the SRWTP site. The project would be connected to existing utilities at the SRWTP site and would not require the installation of infrastructure that could exacerbate fire risk. The project would not require construction of new roads, fuel breaks, emergency water sources, or power lines. Therefore, there would be no impact.

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

No impact. The project is in an area of flat terrain and would not involve changing slopes on the project site, which could expose people to risks of post-fire slope instability. Implementation of the project would result in a small increase in impervious surfaces within the project site. However, the additional impervious surfaces would not result in substantial runoff or drainage changes that would expose people or structures to significant risks that would increase the likelihood of flooding. Therefore, there would be no impact.

2.21 MANDATORY FINDINGS OF SIGNIFICANCE

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XX. Mandatory Findings of Significance.				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?	☒	☐	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☒	☐	☐	☐
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐

2.21.1 Discussion

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?

Potentially significant impact. As discussed in the biological resources and cultural resources sections of this Initial Study, the project would result in potentially significant impacts and could degrade the quality of the environment.

The project site and staging area provide potentially suitable habitat for special-status wildlife species and common raptors and bird species, which could be affected by the project. Therefore, this impact would be potentially significant and this issue will be analyzed further in the EIR.

Although no documented cultural resources are located within the project site or staging area, the potential exists to encounter previously undiscovered archaeological resources during construction-related ground disturbing activities. Therefore, this impact would be potentially significant and this issue will be analyzed further in the EIR.

Although there are no known tribal cultural resources within the project site or staging area, it is possible that yet-undiscovered tribal cultural resources could be encountered or damaged during ground-disturbing construction activities. Therefore, this impact would be potentially significant and this issue will be analyzed further in the EIR.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

Potentially significant impact. Cumulative environmental effects are multiple individual effects that, when considered together, would be considerable or compound or increase other environmental impacts. Individual effects may result from a single project or a number of separate projects and may occur at the same place and point in time or at different locations and over extended periods of time. The purpose of the project is to construct a new biogeneration facility to beneficially use biogas from the SRWTP. The project would not increase population growth either directly or indirectly beyond what has been planned for in the County General Plan. However, as described in this Initial Study, implementation of the proposed project could potentially result in significant impacts to the following resources: air quality; biological resources; cultural resources; GHGs; and tribal cultural resources. When taken together with the effects of past projects, other current projects, and probable future projects, the project's potential impacts could be cumulatively considerable. This issue will be evaluated further in the EIR.

c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?

Potentially significant impact. As identified in this Initial Study, the project could have significant impacts associated with air quality, biological resources, cultural resources, GHGs, and tribal cultural resources. Impacts to biological resources, cultural resources, and tribal cultural resources would not directly affect human beings. However, the project could result in significant impacts associated with air quality and GHGs, which could directly affect human beings. These issue areas will be evaluated further in the EIR.

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2.21 Mandatory Findings of Significance

No references were used in this section.

4 REPORT PREPARERS

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Appendix A

Special-Status Species

Special-Status Plants Known to Occur in the Project Region and their Potential to Occur on the Project Site

Name	Federal Status[1]	State Status[1]	CRPR	SSHCP	Habitat	Potential to Occur in the Project Site
Ferris' milk-vetch *Astragalus tener* var. *ferrisiae*	None	None	1B.1	No	Wetland. Meadows and seeps, valley, and foothill grassland. Subalkaline flats on overflow land in the Central Valley; usually seen in dry, adobe soil. 16–246 feet in elevation. Blooms April–May.	**Not expected to occur:** The project site does not provide habitat (i.e., subalkaline flats or dry adobe soils) suitable for this species.
Watershield *Brasenia schreberi*	None	None	2B.3	No	Wetland. Freshwater marshes and swamps. Aquatic from water bodies both natural and artificial in California. 98–7,218 feet in elevation. Blooms June–September.	**Not expected to occur:** The project site does not provide wetland habitat suitable for this species.
Bristly sedge *Carex comosa*	None	None	2B.1	No	Wetland. Marshes and swamps, coastal prairie, valley, and foothill grassland. Lake margins, wet places; site below sea level is on a Delta island. -16–5,315 feet in elevation. Blooms May–September.	**Not expected to occur:** The project site does not provide wetland habitat suitable for this species.
Pappose tarplant *Centromadia parryi* ssp. *parryi*	None	None	1B.2	No	Chaparral, coastal prairie, meadows and seeps, coastal salt marsh, valley, and foothill grassland. Vernally mesic, often alkaline sites. 7–1,378 feet in elevation. Blooms May–November.	**Not expected to occur:** The project site does not provide vernally mesic habitat suitable for this species.
Bolander's water-hemlock *Cicuta maculata* var. *bolanderi*	None	None	2B.1	No	Salt marsh, Wetland. Marshes and swamps, fresh or brackish water. 0–656 feet in elevation. Blooms July–September.	**Not expected to occur:** The project site does not provide wetland habitat suitable for this species.
Peruvian dodder *Cuscuta obtusiflora* var. *glandulosa*	None	None	2B.2	No	Wetland. Marshes and swamps (freshwater). Freshwater marsh. 49–919 feet in elevation. Blooms July–October.	**Not expected to occur:** The project site does not provide wetland habitat suitable for this species.
Dwarf downingia *Downingia pusilla*	None	None	2B.2	Covered	Wetland. Valley and foothill grassland (mesic sites), vernal pools. Vernal lake and pool margins with a variety of associates. In several types of vernal pools. 3–1,608 feet in elevation. Blooms March–May.	**Not expected to occur:** The project site does not provide wetland habitat suitable for this species.
Boggs Lake hedge-hyssop *Gratiola heterosepala*	None	None	1B.2	Covered	Wetland. Marshes and swamps (freshwater), vernal pools. Clay soils; usually in vernal pools, sometimes on lake margins. 33–7,792 feet in elevation. Blooms April–August.	**Not expected to occur:** The project site does not provide wetland habitat suitable for this species.
Woolly rose-mallow *Hibiscus lasiocarpos* var. *occidentalis*	None	None	1B.2	No	Wetland. Marshes and swamps (freshwater). Moist, freshwater-soaked riverbanks and low peat islands in sloughs; can also occur on riprap and levees. In California, known from the delta watershed. 0–509 feet in elevation. Blooms June–September.	**Not expected to occur:** The project site does not provide wetland habitat suitable for this species.
Ahart's dwarf rush *Juncus leiospermus* var. *ahartii*	None	None	1B.2	Covered	Valley and foothill grassland. Restricted to the edges of vernal pools in grassland. 98–328 feet in elevation. Blooms March–May.	**Not expected to occur:** The project site does not provide vernal pool edge habitat suitable for this species.

Name	Federal Status[1]	State Status[1]	CRPR	SSHCP	Habitat	Potential to Occur in the Project Site
Alkali-sink goldfields *Lasthenia chrysantha*	None	None	1B.1	No	Vernal pool Vernal pools. Alkaline. 0–656 feet in elevation. Blooms February–June.	**Not expected to occur:** The project site does not provide vernal pool habitat suitable for this species.
Delta tule pea *Lathyrus jepsonii* var. *jepsonii*	None	None	1B.2	No	Wetland. Freshwater and brackish marshes. Often found with *Typha, Aster lentus, Rosa californica, Juncus spp., Scirpus*. Usually on marsh and slough edges. 0–16 feet in elevation. Blooms May–July (September).	**Not expected to occur:** The project site does not provide wetland habitat suitable for this species.
Legenere *Legenere limosa*	None	None	1B.1	Covered	Vernal pools, wetland. In beds of vernal pools. 3–2,887 feet in elevation. Blooms April–June.	**Not expected to occur:** The project site does not provide vernal pool or wetland habitat suitable for this species.
Heckard's pepper-grass *Lepidium latipes* var. *heckardii*	None	None	1B.2	No	Valley and foothill grassland, vernal pools. Grassland, and sometimes vernal pool edges. Alkaline soils. 3–98 feet in elevation. Blooms March–May.	**Not expected to occur:** The project site does not provide wetland habitat suitable for this species.
Mason's lilaeopsis *Lilaeopsis masonii*	None	SR	1B.1	No	Wetland. Freshwater and brackish marshes, riparian scrub. Tidal zones, in muddy or silty soil formed through river deposition or riverbank erosion. 0–33 feet in elevation. Blooms April–November.	**Not expected to occur:** The project site does not provide wetland habitat suitable for this species.
Delta mudwort *Limosella australis*	None	None	2B.1	No	Wetland. Riparian scrub, marshes, and swamps. Usually on mud banks of the Delta in marshy or scrubby riparian associations; often with *Lilaeopsis masonii*. 0–16 feet in elevation. Blooms May–August.	**Not expected to occur:** The project site does not provide wetland habitat suitable for this species.
Slender Orcutt grass *Orcuttia tenuis*	FT	SE	1B.1	Covered	Vernal pools, wetland. Often in gravelly substrate. 82–5,758 feet in elevation. Blooms May–September (October).	**Not expected to occur:** The project site does not provide wetland habitat suitable for this species.
Sacramento Orcutt grass *Orcuttia viscida*	FE	SE	1B.1	Covered	Vernal pools, wetland. 49–279 feet in elevation. Blooms April–July (September).	**Not expected to occur:** The project site does not provide wetland habitat suitable for this species.
Sanford's arrowhead *Sagittaria sanfordii*	None	None	1B.2	Covered	Wetland. Marshes and swamps. In standing or slow-moving freshwater ponds, marshes, and ditches. 0–2,133 feet in elevation. Blooms May–October (November).	**Not expected to occur:** The project site does not provide wetland habitat suitable for this species.
Marsh skullcap *Scutellaria galericulata*	None	None	2B.2	No	Wetland. Marshes and swamps, lower montane coniferous forest, meadows, and seeps. Swamps and wet places. 0–6,398 feet in elevation. Blooms June–September.	**Not expected to occur:** The project site does not provide wetland habitat suitable for this species.
Side-flowering skullcap *Scutellaria lateriflora*	None	None	2B.2	No	Wetland. Meadows and seeps, marshes, and swamps. Wet meadows and marshes. In the Delta, often found on logs. 0–1,640 feet in elevation. Blooms July–September.	**Not expected to occur:** The project site does not provide wetland habitat suitable for this species.

Name	Federal Status[1]	State Status[1]	CRPR	SSHCP	Habitat	Potential to Occur in the Project Site
Suisun Marsh aster *Symphyotrichum lentum*	None	None	1B.2	No	Wetland. Marshes and swamps (brackish and freshwater). Most often seen along sloughs with *Phragmites, Scirpus, blackberry, Typha*. 0–98 feet in elevation. Blooms (April), May–November.	**Not expected to occur:** The project site does not provide wetland habitat suitable for this species.
Saline clover *Trifolium hydrophilum*	None	None	1B.2	No	Wetland. Marshes and swamps, valley and foothill grassland, vernal pools. Mesic, alkaline sites. 0–984 feet in elevation. Blooms April–June.	**Not expected to occur:** The project site does not provide wetland habitat suitable for this species.
Ferris' milk-vetch *Astragalus tener* var. *ferrisiae*	None	None	1B.1	No	Wetland. Meadows and seeps, valley, and foothill grassland. Subalkaline flats on overflow land in the Central Valley; usually seen in dry, adobe soil. 16–246 feet in elevation. Blooms April–May.	**Not expected to occur:** The project site does not provide wetland habitat suitable for this species.

Notes: CRPR = California Rare Plant Rank; CNDDB = California Natural Diversity Database

[1] Legal Status Definitions

Federal:
FE Endangered (legally protected by ESA)
FT Threatened (legally protected by ESA)

State:
SE Endangered (legally protected by CESA)
SR Rare (legally protected by CNPPA)

California Rare Plant Ranks:
1B Plant species considered rare or endangered in California and elsewhere (protected under CEQA, but not legally protected under ESA or CESA)
2B Plant species considered rare or endangered in California but more common elsewhere (protected under CEQA, but not legally protected under ESA or CESA)

Threat Ranks:
0.1 Seriously threatened in California (over 80% of occurrences threatened; high degree and immediacy of threat)
0.2 Moderately threatened in California (20-80% occurrences threatened; moderate degree and immediacy of threat)
0.3 Not very threatened in California (less than 20% of occurrences threatened; low degree and immediacy of threat or not current threats known)

SSHCP:

Covered Species is covered under the SSHCP
No Species is not covered under the SSHCP

[2] Potential for Occurrence Definitions

Not expected to occur: Species is unlikely to be present within the project area due to poor habitat quality, lack of suitable habitat features, or restricted current distribution of the species.

May occur: Suitable habitat is available within the project area; however, there are little to no other indicators that the species might be present.

Likely to occur: All of the species life history requirements can be met by habitat present on the site, and populations/occurrences are known to occur in the immediate vicinity.

Sources: CNDDB 2021; CNPS 2021; SSHCP 2018; Baldwin et al. 2012.

Special-Status Wildlife Known to Occur in the Project Region and their Potential to Occur on the Project Site

Name	Federal Status[1]	State Status[1]	SSHCP	Habitat	Potential to Occur in the Project Site
Invertebrates					
Crotch bumble bee *Bombus crotchii*	None	SSC	No	Coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include *Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia*, and *Eriogonum*.	**Not expected to Occur:** The project site does not support plants associated for this bumble bee.
Ricksecker's water scavanger beetle *Hydrochara rickseckeri*	None	None	Covered	Aquatic, Sacramento/San Joaquin flowing waters, Sacramento/San Joaquin standing waters.	**Not expected to Occur:** The project site does not support aquatic habitat.
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT	None	Covered	Riparian scrub. Occurs only in the Central Valley of California, in association with blue elderberry (*Sambucus nigra* ssp. *caerulea*). Prefers to lay eggs in elderberries 2-8 inches in diameter; some preference shown for "stressed" elderberries.	**Not expected to Occur:** Elderberry shrubs are known to occur in the Bufferlands, nearest is approximately 260 feet southwest of the project site.
Vernal pool fairy shrimp Branchinecta lynchi	FT	None	Covered	Valley and foothill grassland, vernal pool, wetland. Endemic to the grasslands of the Central Valley, Central Coast mountains, and South Coast mountains, in astatic rain-filled pools. Inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	**Not expected to Occur:** The project site does not support vernal pool or wetland habitat suitable for this species.
Mid-walley fairy shrimp *Branchinecta mesovallensis*	None	None	Covered	Vernal pool, wetland. Vernal pools in the Central Valley.	**Not expected to Occur:** The project site does not support vernal pool or wetland habitat suitable for this species.
Vernal pool tadpole shrimp *Lepidurus packardi*	FE	None	Covered	Valley and foothill grassland, vernal pool, wetland. Inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water. Pools commonly found in grass bottomed swales of unplowed grasslands. Some pools are mud-bottomed and highly turbid.	**Not expected to Occur:** The project site does not support vernal pool or wetland habitat suitable for this species.
Fish					
Longfin smelt *Spirinchus thaleichthys*	FC	ST	No	Aquatic, estuary. Euryhaline, nektonic, and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15-30 ppt but can be found in completely freshwater to almost pure seawater.	**Not expected to Occur:** The project site does not support aquatic habitat suitable for this species.
Sacramento perch *Archoplites interruptus*	None	SSC	No	Aquatic, Sacramento/San Joaquin flowing waters, Sacramento/San Joaquin standing waters. Historically found in the sloughs, slow-moving rivers, and lakes of the Central Valley. Prefers warm water. Aquatic vegetation is essential for young. Tolerates wide range of physio-chemical water conditions.	**Not expected to Occur:** The project site does not support aquatic habitat suitable for this species.

Name	Federal Status[1]	State Status[1]	SSHCP	Habitat	Potential to Occur in the Project Site
Sacramento splittail *Pogonichthys macrolepidotus*	None	SSC	No	Aquatic, estuary, freshwater marsh, Sacramento/San Joaquin flowing waters. Endemic to the lakes and rivers of the Central Valley, but now confined to the Delta, Suisun Bay, and associated marshes. Slow moving river sections, dead end sloughs. Requires flooded vegetation for spawning and foraging for young.	**Not expected to Occur:** The project site does not support aquatic habitat suitable for this species.
Steelhead - Central Valley DPS pop. 11 *Oncorhynchus mykiss irideus*	FT	None	No	Aquatic. Sacramento/San Joaquin flowing waters. Populations in the Sacramento and San Joaquin rivers and their tributaries.	**Not expected to Occur:** The project site does not support aquatic habitat suitable for this species.
Chinook salmon - Central Valley spring-run ESU pop. 6 *Oncorhynchus tshawytscha*	FT	ST	No	Aquatic. Sacramento/San Joaquin flowing waters. Adult numbers depend on pool depth and volume, amount of cover, and proximity to gravel. Water temps >27 C are lethal to adults. Federal listing refers to populations spawning in Sacramento River and tributaries.	**Not expected to Occur:** The project site does not support aquatic habitat suitable for this species.
Chinook salmon - Sacramento River winter-run ESU pop. 7 *Oncorhynchus tshawytscha*	FE	SE	No	Aquatic. Sacramento/San Joaquin flowing waters. Sacramento River below Keswick Dam. Spawns in the Sacramento River, but not in tributary streams. Requires clean, cold water over gravel beds with water temperatures between 6 and 14 C for spawning.	**Not expected to Occur:** The project site does not support aquatic habitat suitable for this species.
Amphibians					
California tiger salamander *Ambystoma californiense*	FT	ST	Covered	Cismontane woodland, meadow and seep, riparian woodland, valley and foothill grassland, vernal pool, and wetlands. Central Valley DPS federally listed as threatened. Santa Barbara and Sonoma counties DPS federally listed as endangered. Need underground refuges, especially ground squirrel burrows, and vernal pools or other seasonal water sources for breeding.	**Not expected to Occur:** The project site does not support aquatic habitat suitable for this species.
Western spadefoot *Spea hammondii*	None	SSC	Covered	Cismontane woodland, coastal scrub, valley and foothill grassland, vernal pool, and wetlands. Occurs primarily in grassland habitats but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	**Not expected to Occur:** The project site does not support aquatic habitat suitable for this species.

Name	Federal Status[1]	State Status[1]	SSHCP	Habitat	Potential to Occur in the Project Site
Reptiles					
Giant garter snake *Thamnophis gigas*	FT	ST	Covered	Marsh and swamp, riparian scrub, wetland. Prefers freshwater marsh and low gradient streams. Has adapted to drainage canals and irrigation ditches. This is the most aquatic of the garter snakes in California.	**Not expected to Occur:** Although the nearest CNDDB recorded observation is from Laguna Creek, 370 feet north of project site. Laguna Creek is separated from the project site by a levee and flood wall; and the project site does not support aquatic nor upland habitat suitable for this species. The detention basin north of project site (Emergency Storage Basin E) does not inundate on a regular basis and thus does not provide suitable habitat for this species.
Western pond turtle *Actinemys marmorata*	None	SSC	Covered	Aquatic, artificial flowing waters, Klamath/north coast flowing waters, Klamath/north coast standing waters, marsh and swamp, Sacramento/San Joaquin flowing waters, Sacramento/San Joaquin standing waters, South coast flowing and standing waters. A thoroughly aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches, usually with aquatic vegetation, below 6,000 feet elevation. Need basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	**Not expected to Occur:** The project site does not support aquatic habitat suitable for this species and it is separated from habitat suitable in the Bufferlands, by a levee, concrete wall, and chain link fence.
Birds					
Cooper's hawk *Accipiter cooperi*	None	None	Covered	Woodland, chiefly of open, interrupted, or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river floodplains; also, live oaks.	**May occur:** Species is known to frequent the Bufferlands, riparian habitat along Laguna Creek north of the project site may provide suitable nesting habitat.
Tricolored blackbird *Agelaius tricolor*	None	ST/SSC	Covered	Freshwater marsh, marsh and swamp, swamp, wetland. Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony.	**May occur:** Species is known to frequent the Bufferlands, riparian habitat along Laguna Creek north of the project site may provide suitable nesting habitat.
Golden eagle *Aquila chrysaetos*	None	FP	No	Broadleaved upland forest, cismontane woodland, coastal prairie, Great Basin grassland, Great Basin scrub, lower montane coniferous forest, pinyon and juniper woodlands, upper montane coniferous forest, and valley and foothill grassland. Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons	**Not expected to Occur:** Although the Bufferlands may provide suitable foraging habitat, there is no suitable nesting habitat. The project site does not support habitat suitable for this species.

Name	Federal Status[1]	State Status[1]	SSHCP	Habitat	Potential to Occur in the Project Site
				provide nesting habitat in most parts of range; also, large trees in open areas.	
Burrowing owl *Athene cunicularia*	None	SSC	Covered	Coastal prairie, coastal scrub, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Sonoran desert scrub, and valley and foothill grassland. Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	**May occur:** Species known to nest in the Bufferlands. Vegetation height at project site may discourage usage by owls as its too tall. Limited California ground squirrel burrows as site has been graded historically for staging and construction storage.
Swainson's hawk *Buteo swainsoni*	None	ST	Covered	Great Basin grassland, riparian forest, riparian woodland, valley, and foothill grassland. Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	**May occur:** The trees within the project site do not provide suitable nesting habitat, mature trees, and annual grassland in the Bufferlands provide suitable nesting and foraging habitat. Nearest known nest location is 100 feet west of project site.
Ferruginous hawk *Buteo regalis*	None	None	Covered	Great Basin grassland, Great Basin scrub, pinyon and juniper woodlands, valley, and foothill grassland. Open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon and juniper habitats. Eats mostly lagomorphs, ground squirrels, and mice. Population trends may follow lagomorph population cycles.	**Not expected to Occur:** Although the Bufferlands may provide suitable wintering habitat, the project site does not provide habitat suitable for this species.
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	FT	SE	No	Riparian forest. Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	**Not expected to Occur:** The project site does not support nesting habitat suitable for this species. The adjacent riparian area does not provide dense riparian habitat preferred by this species.
White-tailed kite *Elanus leucurus*	None	FP	Covered	Cismontane woodland, marsh and swamp, riparian woodland, valley and foothill grassland, and wetlands. Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	**May occur:** The trees within the project site do not provide suitable nesting habitat, mature trees and annual grassland in the surrounding area provide suitable nesting and foraging habitat.
Greater sandhill crane *Grus canadensis tabida*	None	ST/FP	Covered	Annual and perennial grassland habitats, moist croplands with rice or corn stubble, and open, emergent wetlands. Typically nests in mounds of wetland plants or hummocks in remote portions of extensive wetlands. Sometimes nests in grass-lined depressions on dry sites.	**May occur:** Regular, often daily, visitor to the Bufferlands from September through March. Known to breed only in Siskiyou, Modoc, and Lassen counties and in Sierra Valley, Plumas, and

Name	Federal Status[1]	State Status[1]	SSHCP	Habitat	Potential to Occur in the Project Site
					Sierra counties. Does not breed in the project area.
Loggerhead shrike *Lanius ludovicianus*	None	SSC	Covered	A common resident and winter visitor in lowlands and foothills throughout California. Prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. Occurs only rarely in heavily urbanized areas, but often found in open cropland. Sometimes uses edges of denser habitats	**May occur:** May forage within the annual grassland for insects and small mice. The project site lacks suitable nesting habitat but riparian area north and west of project site provides suitable nesting and foraging habitat.
California black rail *Laterallus jamaicensis coturniculus*	None	ST/FP	No	Brackish marsh, freshwater marsh, marsh and swamp, salt marsh, wetland. Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	**Not expected to Occur:** The project site does not support nesting habitat suitable for this species.
Song sparrow ("Modesto" population) *Melospiza melodia*	None	SSC	No	Marsh and swamp, wetlands. Emergent freshwater marshes, riparian willow thickets, riparian forests of valley oak (*Quercus lobata*), and vegetated irrigation canals and levees.	**Not expected to Occur:** The project site does not support marsh, swamp, or wetland habitat suitable for this species.
Purple martin *Progne subis*	None	SSC	No	Broadleaved upland forest, lower montane coniferous forest. Inhabits woodlands, low elevation coniferous forest of Douglas-fir, ponderosa pine, and Monterey pine. Nests in old woodpecker cavities mostly, also in human-made structures. Nest often located in tall, isolated tree/snag.	**Not expected to Occur:** The project site does not support nesting habitat suitable for this species.
Bank swallow *Riparia riparia*	None	ST	No	Riparian scrub, riparian woodland. Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	**Not expected to Occur:** The project site does not support nesting habitat suitable for this species.
Least Bell's vireo *Vireo bellii pusillus*	FE	SE	No	Riparian forest, riparian scrub, riparian woodland. Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2,000 feet. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, Baccharis, mesquite.	**Not expected to Occur:** The project site does not support nesting habitat suitable for this species. The adjacent riparian area does not provide dense riparian habitat preferred by this species.
Yellow-headed blackbird *Xanthocephalus xanthocephalus*	None	SSC	No	Marsh and swamp, wetland. Nests in freshwater emergent wetlands with dense vegetation and deep water. Often along borders of lakes or ponds. Nests only where large insects such as Odonata are abundant, nesting timed with maximum emergence of aquatic insects.	**Not expected to Occur:** The project site does not support marsh, swamp or wetland habitat suitable for this species.

Name	Federal Status[1]	State Status[1]	SSHCP	Habitat	Potential to Occur in the Project Site
Mammals					
Western red bat *Lasiurus blossevillii*	None	SSC	Covered	Cismontane woodland, lower montane coniferous forest, riparian forest, riparian woodland. Roosts primarily in trees, 2-40 feet above ground, from sea level up through mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	**Not expected to Occur:** The project site does not support habitat suitable for this species. The cottonwood trees do not provide suitable habitat as they are below the surrounding ground level and existing tall ruderal vegetation does not provide open areas below the trees.
American badger *Taxidea taxus*	None	SSC	Covered	Alkali marsh, alkali playa, alpine, alpine dwarf scrub, bog a fen, brackish marsh, broadleaved upland forest, chaparral, chenopod scrub, cismontane woodland, closed-cone coniferous forest, coastal bluff scrub, coastal dunes, coastal prairie. Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils, and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	**Not expected to Occur:** Badger has not been documented and is not expected to occur on the project site.

General references: Unless otherwise noted all habitat and distribution data provided by CNDDB.

Note: CNDDB = California Natural Diversity Database

[1] Legal Status Definitions

Federal:
FE Endangered (legally protected)
FT Threatened (legally protected)
FC Candidate

State:
FP Fully protected (legally protected)
SSC Species of special concern (no formal protection other than CEQA consideration)
SE Endangered (legally protected)
ST Threatened (legally protected)

SSHCP:

Covered Species is covered under the SSHCP
No Species is not covered under the SSHCP

[2] Potential for Occurrence Definitions

Not expected to occur: Species is unlikely to be present in the plan area due to poor habitat quality, lack of suitable habitat features, or restricted current distribution of the species.

May occur: Suitable habitat is available in the plan area; however, there are little to no other indicators that the species might be present.

Likely to occur: All of the species life history requirements can be met by habitat present on the site, and populations/occurrences are known to occur in the immediate vicinity.

Source: CNDDB 2021; SSHCP 2018, USFWS 2021

Appendix B

Noise Modeling Data

Construction Noise

Location	Distance to Nearest Receptor in feet	Combined Predicted Noise Level (L_{eq} dBA)
Threshold	50	86.1
Residential	4740	46.6

Equipment	Reference Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Excavator	85	0.4
Paver	85	0.5
Dozer	85	0.4

Ground Type	hard
Source Height	8
Receiver Height	5
Ground Factor[2]	0.00

Predicted Noise Level [3]	L_{eq} dBA at 50 feet[3]
Excavator	81.0
Paver	82.0
Dozer	81.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
86.1

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, January 2006. Table 1.

[2] Based on Figure 6-5 from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 6-23).

[3] Based on the following from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 12-3).

L_{eq}(equip) = E.L.+10*log (U.F.) - 20*log (D/50) - 10*G*log (D/50)

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects (FTA 2006: pg 6-23); and

D = Distance from source to receiver.

3 June 2021

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COMMENTS TO REQUEST FOR REVIEW FOR THE MITIGATED NEGATIVE DECLARATION, REGIONAL SAN BIOGENERATION FACILITY PROJECT, SCH#2021050080, SACRAMENTO COUNTY

Pursuant to the State Clearinghouse's 5 May 2021 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Mitigated Negative Declaration* for the Regional San BioGeneration Facility Project, located in Sacramento County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore our comments will address concerns surrounding those issues.

I. Regulatory Setting

Basin Plan

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38.

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has adopted a Basin Plan amendment in noticed public hearings, it must be approved by the State Water Resources Control Board (State Water Board), Office of

Administrative Law (OAL) and in some cases, the United States Environmental Protection Agency (USEPA). Basin Plan amendments only become effective after they have been approved by the OAL and in some cases, the USEPA. Every three (3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues. For more information on the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, please visit our website:
http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/

Antidegradation Considerations

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Implementation Policy is available on page 74 at:
https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_201805.pdf

In part it states:

Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.

This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality.

II. Permitting Requirements

Construction Storm Water General Permit

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit), Construction General Permit Order No. 2009-0009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). For more information on the Construction General Permit, visit the State Water Resources Control Board website at:

http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml

Phase I and II Municipal Separate Storm Sewer System (MS4) Permits[1]
The Phase I and II MS4 permits require the Permittees reduce pollutants and runoff flows from new development and redevelopment using Best Management Practices (BMPs) to the maximum extent practicable (MEP). MS4 Permittees have their own development standards, also known as Low Impact Development (LID)/post-construction standards that include a hydromodification component. The MS4 permits also require specific design concepts for LID/post-construction BMPs in the early stages of a project during the entitlement and CEQA process and the development plan review process.

For more information on which Phase I MS4 Permit this project applies to, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/municipal_permits/

For more information on the Phase II MS4 permit and who it applies to, visit the State Water Resources Control Board at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml

Industrial Storm Water General Permit
Storm water discharges associated with industrial sites must comply with the regulations contained in the Industrial Storm Water General Permit Order No. 2014-0057-DWQ. For more information on the Industrial Storm Water General Permit, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/industrial_general_permits/index.shtml

Clean Water Act Section 404 Permit
If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACE). If a Section 404 permit is required by the USACE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements. If you have any questions regarding the Clean Water Act

[1] Municipal Permits = The Phase I Municipal Separate Storm Water System (MS4) Permit covers medium sized Municipalities (serving between 100,000 and 250,000 people) and large sized municipalities (serving over 250,000 people). The Phase II MS4 provides coverage for small municipalities, including non-traditional Small MS4s, which include military bases, public campuses, prisons and hospitals.

Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACE at (916) 557-5250.

Clean Water Act Section 401 Permit – Water Quality Certification

If an USACE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit), or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications. For more information on the Water Quality Certification, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/water_issues/water_quality_certification/

Waste Discharge Requirements – Discharges to Waters of the State

If USACE determines that only non-jurisdictional waters of the State (i.e., "non-federal" waters of the State) are present in the proposed project area, the proposed project may require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation. For more information on the Waste Discharges to Surface Water NPDES Program and WDR processes, visit the Central Valley Water Board website at:https://www.waterboards.ca.gov/centralvalley/water_issues/waste_to_surface_water/

Projects involving excavation or fill activities impacting less than 0.2 acre or 400 linear feet of non-jurisdictional waters of the state and projects involving dredging activities impacting less than 50 cubic yards of non-jurisdictional waters of the state may be eligible for coverage under the State Water Resources Control Board Water Quality Order No. 2004-0004-DWQ (General Order 2004-0004). For more information on the General Order 2004-0004, visit the State Water Resources Control Board website at: https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2004/wqo/wqo2004-0004.pdf

Dewatering Permit

If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Threat General Order) 2003-0003 or the Central Valley Water Board's Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Threat Waiver) R5-2018-0085. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage

under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at: http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf

For more information regarding the Low Threat Waiver and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2018-0085.pdf

Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Limited Threat Discharges to Surface Water* (Limited Threat General Order). A complete Notice of Intent must be submitted to the Central Valley Water Board to obtain coverage under the Limited Threat General Order. For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2016-0076-01.pdf

NPDES Permit

If the proposed project discharges waste that could affect the quality of surface waters of the State, other than into a community sewer system, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. A complete Report of Waste Discharge must be submitted with the Central Valley Water Board to obtain a NPDES Permit. For more information regarding the NPDES Permit and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/help/permit/

If you have questions regarding these comments, please contact me at (916) 464-0335 or Angela.Nguyen-Tan@waterboards.ca.gov.

Angela Nguyen-Tan
Environmental Scientist

cc: State Clearinghouse unit, Governor's Office of Planning and Research, Sacramento

SACRAMENTO METROPOLITAN
AIR QUALITY
MANAGEMENT DISTRICT

June 3, 2021

Steve Nebozuk
Senior Civil Engineer
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nebozuks@sacsewer.com

Subject: Regional San BioGeneration Facility Project Mitigated Negative Declaration

Dear Steve Nebozuk:

The Sacramento Metropolitan Air Quality Management District (Sac Metro Air District) discovered the Regional San BioGeneration Facility Project (Project) Mitigated Negative Declaration (MND) during a review of CEQANet. Because the Project will require an authority to construct and permit to operate from the Sac Metro Air District, we provide the following comments as a responsible agency under Section 21080.3 of the California Public Resources Code.

According to the project description, Regional San proposes to construct and operate the Project within its existing Sacramento Regional Wastewater Treatment Plant (SRWTP) property. The Project will use biogas produced by the SRWTP's existing anaerobic digesters to create heat and power to operate a portion of SRWTP's onsite operations. Currently, the Sacramento Municipal Utility District (SMUD) operates its Carson Cogeneration Plant (Carson Plant) within the SRWTP campus and provides the SRWTP with a portion of the power and steam via a Commodity Agreement that expires in 2025. Regional San proposes that power from the Project will replace power and steam provided by SMUD.

Construction Thresholds of Significance - Basic Construction Emissions Control Practices
The MND misinterprets Sac Metro Air District's PM10 and PM2.5 construction thresholds, stating that a project would be significant if construction-generated emissions of PM_{10} exceed 80 pounds/day or 14.6 tons/year, or emissions of $PM_{2.5}$ exceeds 82 pounds/day or 15 tons/year. The correct thresholds for both PM_{10} and $PM_{2.5}$ are 0 (zero), and then if best management practices are applied to the project, the non-zero thresholds can be used. A mitigation measure should be added to the Project that requires implementation of Sac Metro Air District's Basic Construction Emissions Control Practices (identified as construction best management practices) so the use of the non-zero thresholds is substantiated (page 3-12 MND).

Operational Thresholds of Significance - Incremental Emissions
The MND states that implementing the Project will result in "displaced" or negative criteria emissions from SMUD's facilities, relying heavily upon the assumption that SMUD will cease operation of a portion of the Carson Plant and cause an incremental decrease in demand for electricity from SMUD's regional power plants (Table 3.3-3, Net Change in Operational Emissions, page 3-16 MND). However, Regional

San does not control the Carson Plant and has no control over regional power distribution and the ultimate fuel type SMUD will use in its power production. As such, claiming pollutant reductions in this manner is inconsistent with Chapter 4 of Sac Metro Air District's CEQA guidance. Project emissions would likely exceed Sac Metro Air District significance thresholds for ozone precursors (NOx and ROG) without the displaced emissions from SMUD facilities. All feasible mitigation should be included in the Project if operational emissions exceed the Sac Metro Air District's significance thresholds.

Further, it is worth noting the Project will not provide enough power for treatment process enhancements needed by 2025, which may lead to more emissions, not less. The MND states that the existing power need is 12 MW, and that the Project would generate approximately 15 MW; however, the 2025 power demand at the SRWTP will be more than 30 MW (page 2-4 MND). While Regional San's March 2014 ECHOWater Environmental Impact Report includes a greenhouse gas (GHG) mitigation measure for a portion of SRWTP's electricity to be derived from renewable sources or purchase GHG offsets, there are no commitments for ozone precursor (NOx or ROG) emissions generated within the Sacramento Federal Nonattainment Area from the energy sector. The MND should recognize the power demand increase in the air quality chapter and acknowledge that low-carbon does not mean combustion-free.

Communication
Because Sac Metro Air District is a responsible agency for the Project, Regional San is required to provide notice of environmental documents in compliance with State CEQA Guidelines Section 15072. To allow for ample time for coordination, please send all future environmental documents and notices to ProjectReview@AirQuality.org.

You may contact me at pphilley@airquality.org or 916-874-4882 if you have questions regarding these comments.

Sincerely,

Paul Philley

Paul Philley, AICP
Program Supervisor, CEQA and Land Use Section

cc: Brian Krebs, Program Manager, Permitting, Sac Metro Air District
Jamie Cutlip, Regional and Local Government Affairs, SMUD

SMUD®

Sent Via E-Mail

June 3,2021

Steve Nebozuk, Senior Civil Engineer
Sacramento Regional County Sanitation District
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nebozuks@sacsewer.com

Subject: **Regional San BioGeneration Facility Project | MND | 2021050080**

Dear Mr. Nebozuk:

The Sacramento Municipal Utility District (SMUD) appreciates the opportunity to provide comments on the Mitigated Negative Declaration (MND) for the Regional San BioGeneration Facility Project (Project, SCH 2021050080). SMUD is the primary energy provider for Sacramento County and the proposed Project area. SMUD's vision is to empower our customers with solutions and options that increase energy efficiency, protect the environment, reduce global warming, and lower the cost to serve our region. As a Responsible Agency, SMUD aims to ensure that the proposed Project limits the potential for significant environmental effects on SMUD facilities, employees, and customers.

It is our desire that the Project will acknowledge any impacts related to the following:

- Overhead and or underground transmission and distribution line easements. Please view the following links on smud.org for more information regarding transmission encroachment:
  - https://www.smud.org/en/Business-Solutions-and-Rebates/Design-and-Construction-Services
  - https://www.smud.org/en/Corporate/Do-Business-with-SMUD/Land-Use/Transmission-Right-of-Way
- Utility line routing
- Electrical load needs/requirements
- Energy Efficiency
- Climate Change
- Cumulative impacts related to the need for increased electrical delivery
- The potential need to relocate and or remove any SMUD infrastructure that may be affected in or around the project area

More specifically, SMUD would like to have the following details related to the electrical infrastructure incorporated into the project description:

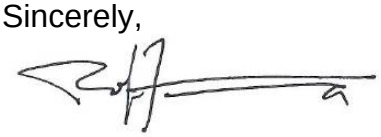
- SMUD has existing 69kV facilities on the project site and along E. Access Rd. that need to remain.
- Due to electrical reconfiguration of SMUD's system, references to SMUD's "Elk Grove" substation should be replaced with "Franklin substation" at the following locations:
    - Section 2.4, Page 2-4 (16)
    - Section 3.6.1, Page 3-36 (56)
    - Section 3.19.1, Page 3-82 (102)
- Any new future service lines will require SMUD easements

SMUD recognizes Regional San's desire to develop a biogeneration facility with the commodity agreement between Regional San and SMUD expiring in 2025. SMUD appreciates the ongoing partnership with Regional San and remains a willing potential partner in the future, particularly as we strive to provide absolute zero carbon power by 2030. As part of SMUD's 2030 Zero Carbon Plan, the Carson Cogeneration Plant may be converted to a simple cycle peaking plant in 2027 and may be used only as needed, approximately 90% less than current operations. In addition, SMUD is exploring other zero carbon alternatives for the Carson Cogeneration Plant, including use of clean fuels (i.e. digester gas, renewable ethanol, biodiesel, renewable natural gas, hydrogen, etc.), hybrid batteries, carbon capture, long duration energy storage, and other technologies to help us achieve our zero carbon goal.

SMUD would like to be involved with discussing the above areas of interest as well as discussing any other potential issues. We aim to be partners in the efficient and sustainable delivery of the proposed Project. Please ensure that the information included in this response is conveyed to the Project planners and the appropriate Project proponents.

Environmental leadership is a core value of SMUD, and we look forward to collaborating with you on this Project. Again, we appreciate the opportunity to provide input on this MND. If you have any questions regarding this letter, please do not hesitate to contact me at 916.732.6676, or by email at rob.ferrera@smud.org.

Sincerely,



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cc: Entitlements

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June 3, 2021

VIA Email and Overnight Mail

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Sacramento Regional Sanitation District
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Sacramento, CA 95827
Email: nebozuks@sacsewer.com

Re: Comments on the Initial Study/Mitigated Negative Declaration for Regional San BioGeneration Facility Project (SCH No. 2021050080)

Dear Mr. Nebozuk:

We are writing on behalf of Sacramento Citizens for Responsible Industry ("Citizens") to provide comments on the Initial Study/Mitigated Negative Declaration ("IS/MND")[1] prepared by the Sacramento Regional Sanitation District ("District") for the Regional San BioGeneration Facility Project ("Project"), State Clearinghouse Number 2021050080. The Project is proposed by the District and proposes to construct and operate a new biogeneration facility, including a cogeneration engine system, to use biogas onsite to produce electricity and heat for the Sacramento Regional Wastewater Treatment Plant.

Based upon our review of the IS/MND, we conclude that the IS/MND fails to comply with the California Environmental Quality Act[2] ("CEQA") in numerous aspects. As explained more fully below, the IS/MND fails to accurately disclose the extent of the Project's potentially significant impacts on air quality and biological

[1] Regional Sanitation District, Initial Study/Mitigated Negative Declaration: Regional San BioGeneration Facility Project, (May, 2021) (hereafter "IS/MND").
[2] Pub. Resources Code ("PRC") §§ 21000 et seq.

resources. There is more than a fair argument that the Project will result in potentially significant, unmitigated impacts relating to air quality and biological resources, which require the District to withdraw the IS/MND and prepare an environmental impact report ("EIR") for the Project that fully complies with CEQA.

The District may not approve the Project until it prepares an EIR that adequately analyzes the Project's potentially significant direct, indirect and cumulative impacts, and incorporates all feasible mitigation measures to avoid or minimize these impacts to the greatest extent feasible.

We reviewed the IS/MND and its technical appendices with the assistance of air quality expert Dr. Phyllis Fox, PhD, PE[3] and expert biologist Renee Owens.[4] We reserve the right to supplement these comments at a later date, and at any later proceedings related to this Project.[5]

I. STATEMENT OF INTEREST

Citizens is an unincorporated association of individuals and labor organizations that may be adversely affected by the potential public and worker health and safety hazards and environmental and public service impacts of the Project. The association includes California Unions for Reliable Energy ("CURE") and its member labor organizations, and their members and families, and other individuals that live and/or work in Sacramento County.

The individual members of Citizens and the members of the affiliated labor organizations live, work, recreate and raise their families in Sacramento County. They would be directly affected by the Project's environmental and health and safety impacts. Individual members may also work constructing the Project itself. They will be first in line to be exposed to any health and safety hazards that may be present on the Project site. They each have a personal interest in protecting the Project area from unnecessary, adverse environmental and public health impacts.

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[3] Letter from Dr. Phyllis Fox, PhD, PE, Comments on the Initial Study/Mitigated Negative Declaration for the Regional San BioGeneration Facility, (June 3, 2021) (hereafter "Fox Comments") **Exhibit A**.

[4] Letter from Renee Owens to Kyle C. Jones, Adams, Broadwell, Joseph & Cardozo, Comments on the Draft Initial Study/ Mitigated Negative Declaration for the Regional San Biogeneration Facility Project, Project SCH # 2021050080, (June 3, 2021) (hereafter "Owens' Comments") **Exhibit B**.

[5] Gov. Code § 65009(b); PRC § 21177(a); *Bakersfield Citizens for Local Control v. Bakersfield* ("*Bakersfield*") (2004) 124 Cal. App. 4th 1184, 1199-1203; see *Galante Vineyards v. Monterey Water Dist*. (1997) 60 Cal. App. 4th 1109, 1121.

The organizational members of the Citizens also have an interest in enforcing environmental laws that encourage sustainable development and ensure a safe working environment for the members that they represent. Environmentally detrimental projects can jeopardize future jobs by making it more difficult and more expensive for businesses to locate and people to live there. This, in turn, jeopardizes future development by causing construction moratoriums and otherwise reduces future employment opportunities for construction workers. The labor organization members of the Citizens therefore have a direct interest in enforcing environmental laws to minimize the adverse impacts of projects that would otherwise degrade the environment.

Finally, the organizational members of the Citizens are concerned about projects that risk serious environmental harm without providing countervailing economic benefits. CEQA provides a balancing process whereby economic benefits are weighed against significant impacts to the environment and it is in this spirit that we offer these comments.

II. SUBSTANTIAL EVIDENCE SUPPORTS A FAIR ARGUMENT THAT PROJECT CONSTRUCTION AND OPERATION MAY RESULT IN POTENTIALLY SIGNIFICANT IMPACTS THAT THE IS/MND FAILS TO DISCLOSE, ANALYZE AND MITIGATE

CEQA is intended to provide the fullest possible protection of the environment. CEQA requires that a lead agency prepare and certify an EIR for any discretionary project that may have a significant adverse effect on the environment and requires analysis of the "whole of an action," including the "direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment."[6]

CEQA has two primary purposes. First, CEQA is designed to inform decision makers and the public about the potential, significant environmental effects of a project.[7] "Its purpose is to inform the public and its responsible officials of the environmental consequences of their decisions before they are made. Thus, the EIR "protects not only the environment but also informed self-government."[8] The EIR

[6] Pub. Resources Code §§ 21002.1(a), 21100(a), 21065, 21151(a); 14 C.C.R. §§ 15064(a)(1), (f)(1), 15367, 15378(a).
[7] 14 CCR § 15002(a)(1).
[8] *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal. 3d 553, 564.

has been described as "an environmental 'alarm bell' whose purpose it is to alert the public and its responsible officials to environmental changes before they have reached ecological points of no return."[9]

Second, CEQA requires public agencies to avoid or reduce environmental damage when "feasible" by requiring "environmentally superior" alternatives and all feasible mitigation measures.[10] The EIR serves to provide agencies and the public with information about the environmental impacts of a proposed project and to "identify ways that environmental damage can be avoided or significantly reduced."[11] If the project will have a significant effect on the environment, the agency may approve the project only if it finds that it has "eliminated or substantially lessened all significant effects on the environment where feasible" and that any unavoidable significant effects on the environment are "acceptable due to overriding concerns."[12]

"At the heart of CEQA is the requirement that public agencies prepare an EIR for any project that may have a significant effect on the environment."[13] A negative declaration is improper, and an EIR must be prepared, whenever it can be fairly argued on the basis of substantial evidence that the project may have a significant environmental impact.[14] "[S]ignificant effect on the environment" is defined as "a substantial, or potentially substantial, adverse change in the environment."[15] An effect on the environment need not be "momentous" to meet the CEQA test for significance—it is enough that the impacts are "not trivial."[16] Substantial evidence, for purposes of the fair argument standard, includes "fact, a reasonable assumption predicated upon fact, or expert opinion supported by fact."[17] The fair argument test therefore requires the preparation of an EIR whenever

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[9] *Berkeley Keep Jets Over the Bay v. Bd. of Port Comm'rs*. (2001) 91 Cal. App. 4th 1344, 1354 ("*Berkeley Jets*"); *County of Inyo v. Yorty* (1973) 32 Cal.App.3d 795, 810.
[10] 14 CCR§ 15002(a)(2) and (3); *see also Berkeley Jets*, 91 Cal.App.4th at 1354; *Citizens of Goleta Valley*, 52 Cal.3d at 564.
[11] 14 CCR §15002(a)(2).
[12] PRC § 21081; 14 CCR § 15092(b)(2)(A) & (B).
[13] *Friends of College of San Mateo Gardens v. San Mateo County Community College Dist.* (2016) 1 Cal.5th 937, 944 (internal citations and quotations omitted).
[14] *Id.* at 957.
[15] Pub. Res. Code § 21068; 14 C.C.R. § 15382; *County Sanitation Dist. No. 2 v. County of Kern* (2005) 127 Cal.App.4th 1544, 1581.
[16] *No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal.3d 68, 83 fn. 16.
[17] Pub. Res. Code § 21080(e)(1) (emphasis added); *Citizens for Responsible Equitable Environmental Development v. City of Chula Vista* (2011) 197 Cal.App.4th 327, 331 ("*CREED*").

"there is substantial evidence that any aspect of the project, either individually or cumulatively, may cause a significant effect on the environment, regardless of whether the overall effect of the project is adverse or beneficial."[18]

Whether a fair argument exists is a question of law that the court reviews de novo, with a preference for resolving doubts in favor of environmental review.[19] In reviewing a decision to prepare a negative declaration rather than an EIR, courts "do not defer to the agency's determination."[20] Neither the lead agency nor a court may "weigh" conflicting substantial evidence to determine whether an EIR must be prepared in the first instance.[21] "The fair argument standard thus creates a low threshold for requiring an EIR, reflecting the legislative preference for resolving doubts in favor of environmental review."[22]

Where experts have presented conflicting evidence on the extent of the environmental effects of a project, the agency must consider the effects to be significant and prepare an EIR.[23] In short, when "expert opinions clash, an EIR should be done."[24] "It is the function of an EIR, not a negative declaration, to resolve conflicting claims, based on substantial evidence, as to the environmental effects of a project."[25] Where substantial evidence is presented, "evidence to the contrary is not sufficient to support a decision to dispense with preparation of an EIR and adopt a negative declaration, because it could be 'fairly argued' that the project might have a significant environmental impact."[26]

As described below, substantial evidence is present here which demonstrates that the Project may cause significant effects on the environment which the IS/MND fails to disclose, analyze and mitigate.

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[18] 14 C.C.R. § 15063(b)(1) (emphasis added).
[19] *CREED*, 197 Cal.App.4th at 331; *Pocket Protectors,* 124 Cal.App.4th at 927.
[20] *Mejia v. City of Los Angeles* (2005) 130 Cal.App.4th 322, 332; *Sierra Club v. County of Sonoma* (1992) 6 Cal.App.4th 1307, 1318.
[21] *Id.* at *13.
[22] *Id.* at *4.
[23] *Pocket Protectors v. City of Sacramento* (2004) 124 Cal.App.4th 903, 935; *Sierra Club v. County of Sonoma* (1992) 6 Cal.App.4th 1307, 1317–1318; CEQA Guidelines § 15064(f)(5).
[24] *Pocket Protectors*, 124 Cal.App.4th at 928; *Sierra Club*, 6 Cal.App.4th at 1317–1318.
[25] *Pocket Protectors*, 124 Cal.App.4th at 935.
[26] *Sundstrom*, 202 Cal.App.3d at 310 (citation omitted).

A. The IS/MND Fails to Disclose, Analyze, and Mitigate the Project's Potentially Significant Air Quality Impacts

Dr. Fox reviewed the District's IS/MND and found numerous errors in the analysis presented, rendering it ineffective as an informational document. Dr. Fox further concludes that a corrected air quality analysis demonstrates that the Project may have potentially significant impacts from construction and operational emissions. Finally, she provides several examples of feasible mitigation measures that the District must incorporate into an EIR for the Project.

1. Air Quality Impacts from Project Construction are Underestimated and Potentially Significant

The IS/MND concludes that air quality impacts from criteria pollutants emitted during Project construction would be less than significant.[27] Dr. Fox has determined that the IS/MND omits details necessary to verify emissions calculations and that Project emissions are likely significant.

a. The IS/MND Fails to Disclose Project Engine Tiers

Dr. Fox finds that the IS/MND and supporting appendices are silent as to the tier of construction engine modeled.[28] This makes it impossible for the public to know the true potential emissions for the Project, since the IS/MND could be analyzing cleaner engines than will be used.[29] Further, the IS/MND does not require any specific tier of engines, so the District is not bound to use equipment that meets the emissions in the IS/MND.[30] Dr. Fox explains that if the IS/MND relies on Tier 4 engines to lower emissions, but the District does not require those, then higher polluting engines could ultimately be selected, increase Project emissions over thresholds of significance without applying mitigation measures.[31]

Dr. Fox demonstrates that Tier 1 engines emit seven times the NOx and fifteen times the PM10 than Tier 4 engines.[32] Thus, without disclosing the engine tiers modeled and requiring higher-tier cleaner engines, the District lacks

[27] IS/MND, p. 3-14.
[28] Fox Comments, pp. 2-3.
[29] Fox Comments, pp. 2-3/
[30] Fox Comments, p. 3.
[31] Fox Comments, p. 3.
[32] Fox Comments, pp. 3-4.

substantial evidence to support the IS/MND's conclusion that construction emissions are less than significant, and the District is allowing construction emissions to exceed applicable thresholds of significance without mitigation. Both are CEQA violations.

b. Construction NOx Emissions Are Potentially Significant

Dr. Fox examined Project emissions if Tier I engines were used in the Project's construction equipment, and found that a simple change in tier level in one type of construction equipment (dozers) would result in NOx of 91 pounds per day, which exceeds the Sacramento Metropolitan Air Quality Management District's ("SMAQMD") threshold of significance of 85 pounds per day, resulting in a significant impact.[33] Tier 1 engines in the Project's backhoes would increase emissions a further 48 pounds per day.[34] Dr. Fox's analysis provides substantial evidence supporting a fair argument that NOx emissions are significant and unmitigated. Thus, without enforceable engine standards, Project construction NOx emissions should have been found to be significant, and mitigation measures should have been considered by the District but were not.

c. The IS/MND Fails to Adequately Analyze Particulate Matter Emissions

The IS/MND concludes that Project emissions of PM 2.5 and PM10 will not be significant.[35] Dr. Fox found several errors with the District's analysis. First, SMAQMD sets a threshold of 80 pounds per day and 14.6 tons per year for PM 2.5 and 82 pounds per day and 15 tons per year if the lead agency imposes best management practices on a Project.[36] However, here, the District only vaguely states that it will comply with SMAQMD's best management practices but does not include them as binding mitigation measures. As such, the IS/MND should have relied on SMAQMD's threshold for Projects that do not impose such measures, which is 0.[37] The IS/MND does not attempt to disclose emissions prior to mitigation and does not describe or impose mitigation, in violation of CEQA.

[33] Fox Comments, p. 4.
[34] Fox Comments, p. 4.
[35] IS/MND, p. 3-14.
[36] Fox Comments, pp. 5-6.
[37] Fox Comments, pp. 5-6.

Second, as described above, the IS/MND does not discuss what type of engine tiers are modeled.[38] If Tier 4 engines were modeled and Tier 1 engines selected, PM emissions would be much higher.[39]

Third, the IS/MND entirely omits sources of particulate matter emissions, notably windblown dust from graded areas and fugitive dust from off-road travel.[40] Windblown dust is particularly problematic. Dr. Fox found that winds in Sacramento in spring can reach as high as 31 miles per hour, whereas the IS/MND only considers and average wind speed of 7.8 miles per hour.[41] These higher winds could occur during grading and result in significant PM2.5 and PM10 emissions.[42]

In sum, the District applied the incorrect threshold of significance for PM2.5 and PM10, failed to properly disclose sources of PM2.5 and PM10 prior to mitigation, omitted sources of emissions, failed to disclose emissions as significant, and failed to include enforceable mitigation measures. The District lacks substantial evidence to support its conclusion that impacts are less than significant, and Dr. Fox's analysis provides substantial evidence supporting a fair argument that PM2.5 and PM10 emissions are significant and unmitigated.

d. The IS/MND Fails to Include Required NOx Mitigation

As stated above, Project construction NOx emissions are significant, triggering a need for mitigation measures to be included pursuant to CEQA. In addition, Dr. Fox explains that the Project is also required to mitigate NOx emissions per the SMAQMD's CEQA Guide.[43] These rules require the Project to reduce NOx emissions ten percent below the state's fleet average.[44] The IS/MND fails to consider this requirement or impose enforceable mitigation to achieve needed reductions.

[38] Fox Comments, p. 6.
[39] Fox Comments, p. 6.
[40] Fox Comments, p. 6.
[41] Fox Comments, p. 7.
[42] Fox Comments, p. 7.
[43] Fox Comments, p. 5.
[44] Fox Comments, p. 5.

e. Feasible Mitigation is Available to Reduce Construction Emissions

Dr. Fox provides numerous measures that the District must consider for the Project to reduce potentially significant NOx, PM2.5 and PM10 emissions. This includes regular watering of roads, applying gravel to roads, applying dust suppressants, and limiting vehicle speeds to reduce particulate matter emissions.[45] For NOx emissions, Dr. Fox suggests requiring selective catalytic reductions on engines, requiring lean NOx catalysts, requiring exhaust gas recirculation, limiting idling, and using alternative-fueled equipment.[46] The District must discuss feasible mitigation measures in an EIR for the Project.

As described above, the IS/MND fails to properly describe and analyze all sources of construction emissions, applies incorrect thresholds of significance, and fails to include binding and feasible mitigation, as required by CEQA. The District lacks substantial evidence to support its conclusions that air quality impacts from Project construction are less than significant. On the contrary, Dr. Fox provides substantial evidence demonstrating impacts may be significant. An EIR must be prepared for the Project that corrects these errors.

2. Air Quality Impacts from Project Operation are Underestimated and Potentially Significant

The IS/MND concludes that the Project's operational emissions would be less than significant, after assuming a change in operations at the nearby Carson Cogeneration Plant, operated by the Sacramento Municipal Utility District ("SMUD").[47] Dr. Fox finds that there are serious flaws with the District's analysis. A corrected analysis shows that the Project may have potentially significant impacts that must be considered in an EIR for the Project.

[45] Fox Comments, pp. 8-9.
[46] Fox Comments, pp. 9-11.
[47] IS/MND, p. 3-16.

a. The IS/MND Fails to Support Emissions with Substantial Evidence

Emissions from the Project are modeled based on unsupported assumptions for Project's new engines, flaring, boilers, and utility displacement.[48] The District has failed to publicly provide the evidence underlying these assumptions, despite three separate requests.[49] Without these assumptions, the claims made in the IS/MND cannot be verified and are unsupported.[50] Further, the IS/MND reduced all emissions from what is modeled in Appendix A, without any discussion or evidence to justify this change. As Dr. Fox explains, the emissions reported in Appendix A are uniformly higher than those reported in the IS/MND's text, rendering the IS/MND's analysis inconsistent and unsupported.[51] As such, the District lacks the evidence necessary to determine that Project impacts are less than significant.

b. Operational NOx Emissions are Likely Significant

In addition to unsupported assumptions, Dr. Fox finds that there are several analytical errors in the IS/MND that result in operational NOx emissions which exceed established thresholds of significance, when analyzed correctly.

i. *Utility Displacement*

The IS/MND assumes that the Project's energy production would entirely displace energy currently provided by SMUD's Carson Cogeneration Plant, which is an older and less efficient facility.[52] Dr. Fox explains that the Carson Cogeneration Plant has only been operating with an average capacity of 47 percent, with capacity at only 35 percent in 2020.[53] Thus, the energy displaced by the Project would include some of the capacity at the Carson Cogeneration Plant, but would also

[48] Fox Comments, p. 16.
[49] Fox Comments, p. 16.
[50] Fox Comments, pp. 16-17.
[51] Fox Comments, p. 15.
[52] IS/MND, p. 3-16.
[53] Fox Comments, p. 18.

displace energy from the cleaner, nearby Consumnes Combined Cycle Plant.[54] This means that the IS/MND overestimates total emissions reduced from this Project due to displacement by 8.5 pounds per day when energy is primarily sourced from the Consumnes Combined Cycle Plant.[55]

Dr. Fox also finds that the IS/MND incorrectly assumes that the heat rate at the Carson Cogeneration Plant was high, when in fact, the actual heat rate at the Carson Cogeneration Plant was almost 22 percent lower than assumed.[56] As a result, Dr. Fox explains that any emissions in the IS/MND attributed to the Carson Cogeneration Plant are artificially inflated.[57] Dr. Fox determines that correcting this error results in an additional increase of Project NOx emissions by 9.3 pounds per day, resulting in a significant impact.[58]

ii. *Reduced Flaring*

The IS/MND deducts NOx emissions by 6.5 pounds per day due to a reduction in flaring from the existing conditions.[59] Dr. Fox finds that the District's assumptions regarding the current level of flaring are entirely unsupported and thus lack credibility.[60]

iii. *Steam Displacement*

The IS/MND reduces NOx emissions by 8.9 pounds per day, based on a reduced steam demand and a thermal efficiency of steam production of 66 percent.[61] Dr. Fox finds that the IS/MND lacks support for the thermal efficiency described in the IS/MND.[62] Further, if thermal efficiency increased only five percent, Project NOx emissions would exceed the threshold of significance.[63] The District lacks evidence to support its claims regarding the amount of emissions displaced here.

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[54] Fox Comments, p. 18.
[55] Fox Comments, p. 19.
[56] Fox Comments, p. 19.
[57] Fox Comments, p. 19.
[58] Fox Comments, p. 19.
[59] IS/MND, p. 3-16.
[60] Fox Comments, p. 20.
[61] IS/MND, p. 3-15.
[62] Fox Comments, p. 21.
[63] Fox Comments, p. 21.

The IS/MND's models determined that NOx emissions from operation would be 64.6 pounds per day, compared to a threshold of 65 pounds per day. Dr. Fox demonstrates that the District lacks substantial evidence to support its conclusion, whereas Dr. Fox has provided substantial evidence demonstrating that NOx emissions may be significant.

c. Operational Particulate Matter Emissions are Likely Significant

Dr. Fox explains that the Project will emit precursors that will form PM2.5 and PM10 when released in the environment.[64] The Project will include selective catalytic reduction equipment, which result in emissions of ammonia slip.[65] This ammonia slip will become PM2.5 and PM10, which was not accounted for in the IS/MND.[66] Dr. Fox calculates the incremental increase in PM10 from these omissions in the IS/MND and finds that overall emissions would be 36.7 tons per year, far exceeding the threshold of significance of 14.6 tons per year and resulting in a significant impact.

Thus, Dr. Fox provides substantial evidence demonstrating that air quality impacts from Project operation are likely to be significant and unmitigated. The District must withdraw the IS/MND and prepare an EIR that adequately discloses, analyzes, and mitigates these impacts.

B. The IS/MND Fails to Disclose, Analyze, and Mitigate the Project's Potentially Significant Biological Resources Impacts

The IS/MND concluded that the Project would have a less-than-significant impact on biological resources.[67] Ms. Owens finds that the District's analysis contains numerous errors. As a result, the IS/MND fails as an informational document and lacks substantial evidence to support its conclusions. Moreover, Ms. Owens concludes that the Project is likely to result in significant impacts which the IS/MND fails to disclose and mitigate. Ms. Owen's comments provide substantial evidence supporting a fair argument that an EIR is required.

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[64] Fox Comments, p. 21.
[65] Fox Comments, p. 22.
[66] Fox Comments, p. 22.
[67] IS/MND, p. 3-20.

1. The District Fails to Establish the Existing Environmental Setting for Biological Resources

The District describes the existing environmental setting incompletely, thereby skewing the District's impact analysis in the IS/MND. The existing environmental setting is the starting point from which the lead agency must measure whether a proposed Project may cause a significant environmental impact.[68] CEQA defines the environmental setting as the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, from both a local and regional perspective.[69]

Describing the environmental setting accurately and completely for each environmental condition in the vicinity of the Project is critical to an accurate and meaningful evaluation of environmental impacts. The importance of having a stable, finite and fixed environmental setting for purposes of an environmental analysis was recognized decades ago.[70] Today, the courts are clear that "[b]efore the impacts of a Project can be assessed and mitigation measures considered, an [EIR] must describe the existing environment. It is only against this baseline that any significant environmental effects can be determined."[71]

An EIR must also describe the existing environmental setting in sufficient detail to enable a proper analysis of project impacts.[72] The CEQA Guidelines provide that "[k]nowledge of the regional setting is critical to the assessment of environmental impacts."[73] This level of detail is necessary to "permit the significant effects of the project to be considered in the full environmental context."[74]

An accurate description of the affected environment is an essential prerequisite for an adequate analysis of Project impacts. Here, however, some critical baseline information is incomplete, outdated, or was never provided.

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[68] *See, e.g., Communities for a Better Env't v. S. Coast Air Quality Mgmt. Dist.* (Mar 15, 2010) 48 Cal.4th 310, 316; *Fat v. City of Sacramento* (2002) 97 Cal.App.4th 1270, 1278, *citing* Remy, et al.; Guide to the Calif. Environmental Quality Act (1999) p. 165.
[69] CEQA Guidelines §15125(a)(1); *Riverwatch v. City of San Diego* (1999) 76 Cal.App.4th 1428, 1453.
[70] *City of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185.
[71] *City of Amador v. El Dorado City Water Agency* (1999) 76 Cal.App.4th 931, 952.
[72] CEQA Guidelines § 15125; *Galante Vineyards v. Monterey Peninsula Water Mgmt. Dist.* (1997) 60 Cal.App.4th 1109, 1121-22.
[73] CEQA Guidelines § 15125(c).
[74] *Id.*

a. Failure to Describe the Bufferlands

The Project site is immediately surrounded by the Bufferlands, an important wildlife area home to over 230 species of birds, 25 species of native mammals, and more than twenty rare plants and animals, all of which may be impacted by the Project's construction and operation.[75] On its website, the District refers to the Bufferlands as a national treasure.[76] In the IS/MND, the District refers to the Bufferlands as grasslands interspersed with creeks, vernal pools, and seasonal wetlands.[77] This fails to adequately describe the importance of the area to species that may be impacted by the Project.

b. Failure to Describe Aquatic Species

The IS/MND concludes that the drainage ditch on the Project site is not a jurisdictional wetland, but mistakenly assumed that no aquatic species are present on the site because no wetlands are present.[78] Ms. Owens explains that while the drainage ditch might not be entitled legal protection, its value to species as a wetland remains and the potential for aquatic species to be present should have been analyzed.[79] In Ms. Owens' expert opinion, small non-jurisdictional water features can provide immense benefit to species' diversity.[80] This fact is demonstrated in the IS/MND, which found bullfrogs on site.[81] Given the fact that the drainage ditch provides habitat for aquatic species and that aquatic species were found on site, the District should have provided a detailed analysis addressing the use of the site by other aquatic species.

c. Failure to Describe Site Use by Giant Garter Snake

Ms. Owens' review of available data also finds that giant garter snakes are more likely to use the site than described in the IS/MND. While the IS/MND stated that the nearest sighting was 370 feet from the site, Ms. Owens finds that giant garter snakes have been observed on site.[82] These snakes prey upon bullfrogs that

[75] Owens' Comments, pp. 1-2.
[76] Owens' Comments, p. 2.
[77] IS/MND, p. 3-4.
[78] IS/MND, pp. 3-23-3-25.
[79] Owens' Comments, pp. 3-4.
[80] Owens' Comments, pp. 3-4.
[81] Owens' Comments, p. 4.
[82] Owens' Comments, pp. 4-5.

are present on site and live and breed in water features and surrounding habitat as is found here.[83] Ms. Owens explains that the giant garter snake is a covered species under the South Sacramento Habitat Conservation Plan ("SSHCP") and that the SSHCP requires an approved biologist to delineate habitat for the species but that none of that work was done here.[84]

d. Inconsistent Descriptions of Species' Use of the Project Site

Ms. Owens finds that the IS/MND's description of the existing use of the site by numerous special-status species is inconsistent and confusing. The IS/MND describes three trees to the north and east of the site as locations where Swainson's hawk nests have been observed but later says that those trees are not suitable for raptor nests.[85] The IS/MND also states that the nearest Swainson's hawk nest is 100 feet east from the site, then later erroneously states that the nearest nest is 100 feet west.[86]

The IS/MND further states that loggerhead shrike may nest in the north and west of the Project site but states in another section that loggerhead shrike normally nest to the south of the Project site.[87] In Ms. Owens' expert opinion, loggerhead shrike nest in brush or tumbleweed between 2.5 and four feet in height and that the land immediately east of the Project site is suitable nesting territory.[88] Further, they are not limited to riparian areas, as suggested by the IS/MND.[89]

The IS/MND next claims that elderberry longhorn beetle would not occur on the Project site, because the nearest elderberry shrubs are southwest of the site, whereas in diagrams provided, elderberry shrubs were actually immediately adjacent and to the east and north of the site.[90] These inconsistencies confuse the reader and prevent a proper analysis of Project impacts. A correct environmental setting must be established in an EIR for the Project.

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[83] Owens' Comments, pp. 4-5.
[84] Owens' Comments, p. 5.
[85] Owens' Comments, p. 6.
[86] Owens' Comments, pp. 6-7.
[87] Owens' Comments, p. 7.
[88] Owens' Comments, p. 7.
[89] Owens' Comments p. 7.
[90] Owens' Comments, p. 7.

2. The IS/MND Fails to Properly Analyze the Project's Potentially Significant Impacts to Foraging Habitat

The IS/MND states that the Project site contains vegetation that is too tall and thick for foraging habitat and that impacts to the site were previously mitigated for a separate project.[91] For these reasons, it concludes that foraging value is low and there will not be a significant impact.[92] This analysis is incorrect.

First, Ms. Owens explains that the narrative that the site has some grasses that are too tall or too thick is insufficient to discount the site as foraging habitat.[93] There are numerous species who could forage the site, all with different foraging habits.[94] In her experience, Ms. Owens has found that Swainson's hawk and loggerhead shrike regularly forage on insects present on the site.[95] The IS/MND therefore lacks supporting evidence for its conclusion that these species are not present on the Project site, and Ms. Owens' observations constitute substantial evidence demonstrating that these special status species may be present on the Project site.

Second, the District cannot rely on mitigation for a separate Project to address the loss of the Project site here without describing that mitigation and demonstrating, with substantial evidence, how those impacts were mitigated.[96] Previous mitigation measures already implemented have become part of the existing environmental setting. The proper analysis for this Project is the change from that existing environmental setting. Since the site still functions as potential foraging habitat, its loss would be a new impact that triggers new mitigation under CEQA. The loss of 5.6 acres of foraging habitat must be properly analyzed and mitigated in an EIR for the Project.

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[91] IS/MND, pp. 3-25-3-26.
[92] IS/MND, pp. 3-25-3-26.
[93] Owens' Comments, p. 8.
[94] Owens' Comments, pp. 8-9.
[95] Owens' Comments, p. 9.
[96] *San Bernardino Valley Audubon Society v. Metro. Water Dist.* (1999) 74 Cal. App.4th 382, 397 (biological mitigation ineffective when already dedicated to another project).

3. The IS/MND Fails to Properly Analyze the Project's Potentially Significant Impacts to Sandhill Cranes

The IS/MND claims that the Project would not have impacts to sandhill cranes because construction will not occur during the winter season when cranes will be present and because there is other habitat within the Bufferlands for cranes further from the Project.[97] Ms. Owens explains that this analysis fails to appropriately account for impacts to cranes. First, she explains that the claim that construction will not occur during winter conflicts with other sections of the IS/MND that state that construction will occur from 2022-2024.[98] Second, Ms. Owens explains that the IS/MND's suggestion that cranes have more habitat nearby fails to justify the harassment that Project construction could cause.[99] Noise, dust, lighting, and machinery will disturb sandhill cranes, which is an impact in of itself.[100] As she explains, just because other habitat exists nearby does not mean that this impact is not potentially significant or does not require mitigation.[101] She concludes that the IS/MND's analysis of the Project's impacts on sandhill cranes is patently inadequate and unsupported by substantial evidence.

4. The District Relies on Ineffective or Impermissibly Deferred Mitigation

The IS/MND must propose mitigation measures that reduce or avoid a project's significant impacts.[102] Mitigation measures cannot be so undefined that it is impossible to judge their effectiveness.[103] Rather, they must identify the methods used to mitigate the impacts and set out standards that the agency will commit to meet.[104] Mitigation measures must be enforceable to ensure that they will not be adopted and simply ignored.[105]

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[97] IS/MND, pp. 3-29-3-30.
[98] Owens' Comments, p. 15.
[99] Owens' Comments, pp. 15-16.
[100] Owens' Comments, pp. 15-16.
[101] Owens' Comments, p. 16.
[102] Pub. Resources Code § 21100, subd. (b)(3).
[103] *Preserve Wild Santee v. City of Santee* (2012) 210 Cal.4th 260, 281.
[104] *North Coast Rivers Alliance v. Marin Mun. Water Dist.* (2013) 216 Cal.4th 614, 647.
[105] Pub. Res. Code § 21081.6, subd. (b); CEQA Guidelines § 15126.4, subd.(a)(2); *Anderson First Coalition v. City of Anderson* (2005) 130 Cal.4th 1173, 1186.

Further, it is generally improper to defer the formulation of mitigation measures.[106] An exception to this general rule applies when the agency has committed itself to specific performance criteria for evaluating the efficacy of the measures to be implemented in the future, and the future mitigation measures are formulated and operational before the project activity that they regulate begins.[107] As the courts have explained, deferral of mitigation may be permitted only where the lead agency:

> (1) undertakes a complete analysis of the significance of the environmental impact;
> (2) proposes potential mitigation measures early in the planning process; and
> (3) articulates specific performance criteria that would ensure that adequate mitigation measures were eventually implemented.[108]

Numerous mitigation measures for biological resources fail to meet these standards.

a. Mitigation Measure 3.4-1

Mitigation Measure 3.4-1 proposes to avoid impacts to Swainson's hawk and other nesting raptors.[109] First, it suggests that the District will not commence construction activities within a quarter mile of Swainson's hawk nests during the breeding season and that the District would discourage breeding and deter establishment or nests.[110] Ms. Owens explains that this provision is ineffective and actually harmful to raptors since deterring a breeding pair of protected birds from returning to a nest is harassment that constitute take under the Endangered Species Act.[111] Further, Ms. Owens finds that the entire Project site is within a quarter mile of several documented Swainson's hawk nests and proposes an 18 to 24 month construction time.[112] The buffer proposed would therefore halt construction for many months, and is likely to be found infeasible.[113]

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[106] CEQA Guidelines § 15126.4(a)(1)(B); *POET v. CARB*, 218 Cal.App.4th at 735.
[107] *POET*, 218 Cal.App.4th at 738.
[108] *Comtys. for a Better Env't v. City of Richmond* (2010) 184 Cal.App.4th 70, 95; *Cal. Native Plant Socy' v. City of Rancho Cordova* (2009) 172 Cal.App.4th 603, 621.
[109] IS/MND, p. 3-26-3-27.
[110] IS/MND, p. 3-26.
[111] Owens' Comments, p. 10.
[112] Owens' Comments, p. 10.
[113] Owens' Comments, pp. 10-11.

Mitigation Measure 3.4-1 allows for a qualified biologist to reduce the nest buffer, if unlikely to disturb the nest.[114] If agitated behavior occurs, the biologist will develop appropriate avoidance measures in consultation with the California Department of Fish and Wildlife ("CDFW").[115] Ms. Owens again explains that this provision relies on further impact through harassment, rather than actual effective mitigation.[116] A quarter-mile buffer was designed by CDFW to ensure breeding success, based on biological data.[117] There are no measures by which a biologist to make an objective determination that the buffer should be reduced.[118]

Given the infeasibility of limiting construction to outside Swainson's hawk breeding seasons and subjective ability to reduce the buffer, Ms. Owen's concludes that further harassment and impact to Swainson's hawk will occur.[119] As such, Mitigation Measure 3.4-1 requires the District to develop further measures to avoid impacts.[120] The IS/MND lacks any performance measures or details as to what these measures are and instead provides the District complete discretion as to what it will or will not do.[121] In sum, Mitigation Measure 3.4-1 is ineffective and impermissibly deferred and will likely cause further harm to Swainson's hawk, rather than mitigate it.

b. Mitigation Measure 3.4-2

Mitigation Measure 3.4-2 proposes to implement buffers around suitable burrowing owl habitat but fails to define suitability.[122] This constitutes impermissible deference to the District, who is not bound in anyway to mitigate impacts because it can simply determine burrows as unsuitable.[123] There is no way for the public or the District to gauge the effectiveness of this measure.[124] Further, if suitable habitat is found and a buffer established, the IS/MND still allows for construction activities within buffer zones.[125] Activities within buffers are still

[114] IS/MND, p. 3-27.
[115] IS/MND, p. 3-27
[116] Owens' Comments, pp. 11-12.
[117] Owens' Comments, pp. 11-12.
[118] Owens' Comments, p. 12.
[119] Owens' Comments, pp. 10-12.
[120] IS/MND, p. 3-27.
[121] Owens' Comments, p. 12.
[122] Owens' Comments, p. 13.
[123] Owens' Comment, p. 13.
[124] Owens' Comment, p. 13.
[125] Owens' Comment, p. 13.

allowed unless a biologist determines that harassment is occurring.[126] Thus, Mitigation Measure 3.4-2 is impermissibly deferred, ineffective, and will increase impacts to burrowing owl.

c. Mitigation Measure 3.4-3

Similar to other measures, Mitigation Measure 3.4-3 relies on buffers from species' nests which can be reduced until evidence of harassment occurs, as determined by a biologist.[127] This deference to a future determination by a biologist lacks performance measures required to constitute a permissible deferred mitigation measure under CEQA.[128] As with the other measures, allowing harassment to occur as a way to test nest buffers allows for unmitigated impacts to occur, limiting the effectiveness of this measure.[129]

The IS/MND fails to establish the existing environmental setting, fails to analyze potentially significant impacts, and includes ineffective and impermissibly deferred mitigation. It justifies these impacts by suggesting construction will not occur during summer to avoid Swainson's hawk impacts and will not occur during winter to avoid sandhill crane impacts. Given this, it is highly likely that impacts from this Project are significant and unavoidable. Therefore, the District must prepare an EIR for this Project.

III. CONCLUSION

CEQA requires that an EIR be prepared if there is substantial evidence demonstrating that any aspect of a project, either individually or cumulatively, may cause a significant effect on the environment.[130] As discussed herein, there is substantial evidence supporting a fair argument that the Project would result in significant adverse impacts that were not identified in the IS/MND, and that are not adequately analyzed or mitigated. The IS/MND also fails to contain the basic information and analysis required by CEQA, deficiencies which "cannot be dismissed as harmless or insignificant defects."[131]

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[126] Owens' Comment, pp. 13-14.
[127] IS/MND, p. 3-30.
[128] Owens' Comments, p. 15.
[129] Owens' Comments, p. 16.
[130] Pub. Res. Code § 21151; 14 CCR §15063(b)(1).
[131] *Bakersfield Citizens for Local Control v. Bakersfield ("Bakersfield")* (2004) 124 Cal. App. 4th 1184, 1220.

The District's findings regarding Project impacts either do not comply with the law or are not supported by substantial evidence. The District cannot approve the Project until it revises its land use analysis and prepares an EIR that resolves these issues and complies with CEQA's requirements.

Sincerely,

Kyle C. Jones

KCJ:ljl
Attachments

EXHIBIT A

Comments

on the

Initial Study/ Mitigated Negative Declaration

for the

Regional San BioGeneration Facility

Sacramento County, California

June 3, 2021

By

Phyllis Fox, PhD, PE

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1. INTRODUCTION

Sacramento Regional County Sanitation District (Regional San or the "Applicant") is proposing to construct and operate the Regional San BioGeneration Facility (Project) within the existing Sacramento Regional Wastewater Treatment Plant (SRWTP). Regional San currently delivers renewable biogas generated by the SRWTP to SMUD in exchange for reliable utility and backup power, steam for digester heating, and revenue according to terms of an existing Commodity Agreement. The Project includes a new biogeneration engine system to use biogas on site to produce heat and electricity for the SRWTP. The Project includes up to six internal combustion engine generators, engine exhaust treatment, a biogas conditioning system, a standby hot water boiler, and a new building. Regional San, the CEQA lead agency, has prepared an Initial Study/Mitigated Negative Declaration (IS/MND)[1] for this facility.

I reviewed the air quality analysis in the IS/MND and supporting files supplied by the lead agency. In my opinion, the air quality analysis in the IS/MND is substantially deficient and does not fulfill its mandate as an informational document under CEQA to inform the public of potential impacts. Further, the Project will result in significant impacts that have not been identified and/or adequately mitigated. My review and analysis of the IS/MND indicate that:

- The Project description is incomplete and fundamentally flawed.
- The IS/MND fails as an informational document under CEQA for failing to evaluate all impacts, including cumulative. construction and operational air quality impacts and for failing to support construction and operational emissions.
- Construction NOx, PM2.5, and PM10 emissions are significant and unmitigated.
- Operational NOx, PM10, and PM2.5 emissions are significant and unmitigated.
- Cumulative construction and operational impacts were not evaluated even though there are 4,358 projects under development in Sacramento County including one at the instant Project site. Thus, there is no basis for concluding impacts are not cumulatively considerable.

I have over 40 years of experience in the field of environmental engineering, including air emissions and air pollution control; greenhouse gas (GHG) emission

[1] Sacramento Regional County Sanitation District, Initial Study/Proposed Mitigated Negative Declaration, May 2021; https://ceqanet.opr.ca.gov/2021050080.

inventory and control; water quality and water supply investigations; hazardous waste investigations; risk of upset modeling; environmental permitting; nuisance investigations (odor, noise); environmental impact reports (EIRs), including CEQA/NEPA documentation; risk assessments; and litigation support. I have MS and PhD degrees in environmental engineering from the University of California at Berkeley and am a licensed professional engineer in California. My resume is included as Exhibit 1 to these comments.

I have prepared comments, responses to comments and sections of CEQA and NEPA documents on air quality, greenhouse gas emissions, water supply, water quality, hazardous waste, public health, risk assessment, worker health and safety, odor, risk of upset, noise, land use, traffic, and other areas for well over 500 CEQA and NEPA documents. This work includes EIRs, EISs, Initial Studies (ISs), Negative Declarations (NDs), and Mitigated Negative Declarations (MNDs). My work has been specifically cited in two published CEQA opinions: *Berkeley Keep Jets Over the Bay Committee, City of San Leandro, and City of Alameda et al. v. Board of Port Commissioners* (2001) 111 Cal. Rptr. 2d 598, and *Communities for a Better Environment v. South Coast Air Quality Management Dist.* (2010) 48 Cal. 4th 310; and has supported the record in many other CEQA and NEPA cases. I have also presented expert testimony in many California Energy Commission (CEC) cases and before the hearing boards of numerous air districts and other regulatory agencies across the United States.

2. CONSTRUCTION AIR QUALITY IMPACTS ARE UNSUPPORTED AND SIGNIFICANT

The Applicant used the California Emissions Estimator Model (CalEEMod), Version 2016.3.2 computer program[2] to calculate construction emissions.[3] The IS/MND fails to document all of the inputs used in this model and further fails to calculate construction emissions that are not included in this model. Thus, the IS/MND underestimates construction emissions—which, when these errors and omissions are corrected, are significant.

2.1. Construction Air Quality Impacts Are Unsupported

The amount of pollution from construction equipment is categorized using a system of "engine tiers." The higher the tier, the lower the emissions.[4] For example, for

[2] CAPCOA, California Emissions Estimator Model (CalEEMod) User's Guide, Version 2016.3.2 2016, November 2017, pdf 7; http://www.caleemod.com/.

[3] IS/MND, pdf 33.

[4] See, e.g., DieselNet, Emission Standards: Nonroad Diesel Engines; https://dieselnet.com/standards/us/nonroad.php.

a typical backhoe, which will be used in construction of the Project,[5] the engine exhaust emissions of NOx and PM in grams per brake horsepower hour (g/bHp-hr) as a function of engine tier are shown in Figure 1.[6] Tier 1 equipment has the highest emissions and Tier 4 Final equipment the lowest emissions. The IS/MND and supporting appendices are totally silent on the tier of the engines assumed in the construction emissions. Thus, the Applicant has no obligation to use lower-emitting, higher-tier (e.g., Tier 4 Final) equipment and is free to use high-emission Tier 1 equipment.

Figure 1: PM and NOx Emissions by Tier for a Backhoe[7]

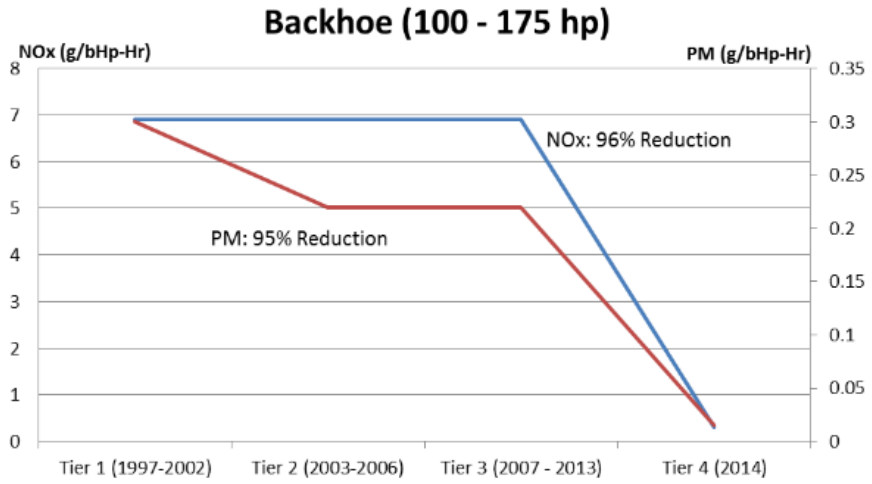

Figure 1 shows that NOx exhaust emissions would be about 35 (7/0.2) times higher if all Tier 1 construction equipment were used instead of Tier 4 equipment. Similarly, this figure shows that PM exhaust emissions would be about 15 (0.3/0.02) times higher if all Tier 1 equipment were used instead of Tier 4 equipment.

It is standard practice to disclose the construction equipment engine tier used in CalEEMod analyses, as it is one of the inputs. Further, it is standard practice in CEQA documents to require the use of the engine tiers assumed in the CalEEMod analyses as mitigation. The engine tier of the off-road construction equipment that would be used to build the Project must be known to estimate construction emissions. The IS/MND and Appendix A only identify the equipment, but not the tiers assumed in the

[5] IS/MND, pdf 19, 33, 89 and Appendix A, pdf 10, 37, 65.

[6] See also EPA, Nonroad Compression-Ignition Engines: Exhaust Emission Standards.

[7] Ibid.

CalEEMod run.[8] Further, the IS/MND's discussion of construction emissions is also silent on construction equipment tier.[9]

Without identifying the tier of the construction equipment assumed in the emission calculations and requiring it as mitigation, the Applicant is free to use the cheapest, highest-emitting, Tier 1 equipment to build the Project. Tier 1 construction equipment would emit over 7 times more NOx and 15 times more PM10 than the most efficient Tier 4 construction equipment. The Applicant has a significant financial incentive to use lower-tier, higher-polluting equipment as it is much cheaper than the newer, better controlled Tier 4 construction equipment. Thus, unmitigated increases in NOx and PM10 from construction equipment could exceed the Sacramento Metropolitan Air Quality Management District's (SMAQMD's) CEQA significance thresholds of 85 lb/day for NOx and zero for PM10, even if all feasible BACT/BMPs are applied.

2.1.1. Construction NOx Emissions

Construction NOx emissions would exceed the SMAQMD's NOx significance threshold of 85 lb/day[10] if Tier 1 equipment were used. For example, assuming just three 247-hp pieces of construction equipment operating simultaneously (dozers during site preparation),[11] NOx emissions would be 91 lb/day,[12] which exceeds the SMAQMD's construction NOx significance threshold of 85 lb/day[13] and is thus a significant construction air quality impact. If the four backhoes were also Tier 1, NOx emissions would increase by an additional 48 lb/day,[14] and so on for all the construction equipment.

There is nothing in the IS/MND to prevent the Applicant from selecting all Tier 1 construction equipment, which would result in significantly higher NOx emissions than the significance threshold. The SMAQMD CEQA Guidance requires that when NOx emissions are significant, "all feasible mitigation shall be implemented to reduce NOx

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[8] IS/MND, Appendix A.

[9] IS/MND, pdf 19-20, 34.

[10] SMAQMD Thresholds of Significance Table; http://www.airquality.org/LandUseTransportation/Documents/CH2ThresholdsTable4-2020.pdf.

[11] IS/MND, Appendix A, pdf 7.

[12] NOx emissions dozers = 3(7 g/bhp-hr)(247 bhp)(8 hr/day)/(454 g/lbs) = **91.4 lbs/day.**

[13] SMAQMD Thresholds of Significance Table.

[14] NOx emissions backhoes = 4(7 g/bhp-hr)(97 bhp)(8 hr/day)/(454 g/lbs) = **47.9 lbs/day.**

emissions."[15] The IS/MND does not contain any construction NOx mitigation, nor does it disclose the engine tiers (the key factor determining NOx emissions) or require that the engine tiers assumed in the CalEEMod analysis be enforced as mitigation. Thus, the IS/MND fails as an informational document under CEQA. Absent enforceable limits on engine tiers, construction NOx emissions are significant and unmitigated.

Further, the SMAQMD CEQA Guide requires that "all construction projects regardless of the screening level are required to implement the Sac Metro Air District's Basic Construction Emission Control Practices (also known as Best Management Practices [BMPs])."[16] These measures for NOx (exhaust controls) are to use "Enhanced On-site Exhaust Controls to achieve a 10% reduction of NOx from off-road construction equipment exhaust when compared to the state fleet average."[17] The IS/MND is silent on construction NOx mitigation, which is required even when NOx emissions are not significant. Even if a 10% reduction were required, this would not mitigate significant NOx impacts from using Tier 1 engines. Thus, the IS/MND fails as an informational document under CEQA.

The significant NOx emissions from construction equipment can be controlled by requiring the use of Tier 3 to 4 construction equipment or by retrofitting older Tier 1 to 2 equipment with similarly effective emissions controls, such as exhaust selective catalytic reduction (SCR). There are other recognized methods to reduce NOx from construction equipment that should be required if Tier 4 Final construction equipment is not available for all equipment required to construct the Project. These are discussed in Comment 2.1.4.

2.1.2. Construction PM10 Emissions

Construction PM10 and PM2.5 emissions arise from two sources: (1) fugitive dust from grading, excavating, and other construction activities and (2) engine exhaust. The SMAQMD PM10 and PM2.5 construction significance thresholds are zero (0) unless all feasible BACT/BMPs are applied, in which case they are 80 lb/day and 14.6 ton/yr for PM10 and 82 lb/day and 15 ton/yr for PM2.5.[18] The IS/MND based its analysis on 80 lb/day for PM10 and 82 lb/day for PM2.5 and asserts that "all feasible BACT/BMPs"

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[15] SMAQMD, CEQA Guide, p. 3-6, Revised April 2020; http://www.airquality.org/LandUseTransportation/Documents/Ch3Construction4-30-2020.pdf.

[16] Ibid., p. 3-4

[17] SMAQMD, CEQA Guide, Section 3.4.2, p. 3-9. See also: Enhanced On-Site Exhaust Controls; http://www.airquality.org/LandUseTransportation/Documents/Ch3On-SiteEnhancedExhaustMitigationFinal4-2019.pdf.

[18] SMAQMD Threshold Significance Table.

are required.[19] However, the IS/MND only states that "all SMAQMD-recommended Best Management Practices (BMPs) and use of Best Available Control Technology (BACT) will be implemented to minimize emissions of PM10 and PM2.5" without ever identifying the BMPs and BACT or requiring them as enforceable mitigation.[20] Further, the IS/MND only addresses fugitive dust BMPs, rather than BMPs and BACT for PM2.5 and PM10 exhaust emissions from construction equipment.

The IS/MND reports PM10 emissions of 1.6 lb/day and PM2.5 emissions of 1.5 lb/day from construction equipment exhaust[21] but fails to specify the basis of these emissions (e.g., the assumed engine tiers). Thus, the IS/MND fails as an informational document under CEQA. If the CalEEMod analysis assumed Tier 4 Final construction equipment, a common assumption, PM10 and PM2.5 emissions would be significantly higher if the applicant selected lower-tier equipment, which is allowed as the IS/MND does not require the use of a specific engine tier. The Applicant is free to use any available tier equipment because the IS/MND does not require the use of Tier 4 Final equipment.

The IS/MND also reports fugitive PM10 emissions of 18.2 lb/day and PM2.5 emissions of 10 lb/day based on the CalEEMod run.[22] The CalEEMod model used to estimate construction emissions does not include all sources of PM10 and PM2.5 construction emissions. It includes fugitive dust associated with grading, demolition, truck loading, and on-road vehicles traveling along paved and unpaved roads. However, it omits the major source of fugitive PM10 emissions at construction sites—windblown dust from graded areas and storage piles and fugitive dust from off-road travel:[23]

> Fugitive dust associated with grading, demolition, truck loading, and on-road vehicles traveling along paved and unpaved roads. (Fugitive dust from wind blown sources such as storage piles and inactive disturbed areas, as well as fugitive dust from off-road vehicle travel, are not quantified in CalEEMod, which is consistent with approaches taken in other comprehensive models.)

These omitted emissions must be separately calculated using methods in AP-42[24] and added to the CalEEMod PM10 and PM2.5 emissions. They were not. Fugitive dust

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[19] IS/MND, Table 3.3-2, pdf 34.

[20] IS/MND, pdf 33.

[21] IS/MND, Table 3.3-2, pdf 34.

[22] IS/MND, Table 3.3-2, pdf 34 and Appendix A, pdf 3.

[23] CAPCOA, California Emissions Estimator Model (CalEEMod) User's Guide, Version 2016.3.2 2016, November 2017, pdf 7; http://www.caleemod.com/.

[24] U.S. EPA, Compilation of Air Pollutant Emission Factors, Report AP-42; https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emission-factors#Proposed.

emissions arise from storage piles, grading, truck loading, and inactive disturbed areas. Based on calculations I have made in other cases, these are the major sources of PM10 and PM2.5 emissions from construction projects. Fugitive dust emissions taken alone frequently exceed PM10 and PM2.5 significance thresholds. Thus, the IS/MND, which relied on the CalEEMod emission calculations, fails as an informational document under CEQA as it does not include these additional sources of fugitive dust PM10 and PM2.5 emissions.

Windblown dust from Project disturbed soils is a particular concern at this site because high winds occur regularly during spring.[25] The IS/MND fails as an informational document under CEQA for failing to include a wind rose for the Project area. Winds can reach 31 mph in Sacramento.[26]

In comparison, the IS/MND's construction emissions assumed an average wind speed of 3.5 m/s (7.8 mph).[27] However, the higher winds that occur at the Project site can raise significant amounts of dust, even when conventional dust control methods are used. If these winds occurred during grading, cut and fill, or soil movement from bare graded soil surfaces (even if periodically wetted), significant amounts of PM10 and PM2.5 would be released. As dust control is not required during nighttime hours when no active construction activity occurs, PM10 and PM2.5 emissions could be even higher than during active construction work.

Wind erosion emissions are typically calculated using methods in AP-42,[28] which require detailed information on site topography, wind profiles, and dispersion modeling. This information is not cited or included in the IS/MND. Generally, wind erosion ambient air quality impacts are estimated using the AERMOD model. The IS/MND does not include any calculations of wind erosion emissions, any of the information required to calculate them, or any estimate of ambient PM2.5 and PM10 impacts from wind erosion. Rather, the IS/MND tacitly assumes that compliance with conventional construction mitigation measures and regulations constitutes adequate wind erosion control, without any analysis at all or without acknowledging the added risk of high-velocity winds that occur in the area.

Wind erosion emissions depend on the disturbed area. The CalEEMod runs in Appendix A assumed a disturbed area of 3.4 acres.[29] Wind erosion particulate matter

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[25] Sacramento Wind Statistics; https://wind.willyweather.com/ca/sacramento-county/sacramento.html.

[26] Ibid.

[27] IS/MND, Appendix A, pdf 4.

[28] U.S. EPA, AP-42, Section 13.2.5 Industrial Wind Erosion; https://www3.epa.gov/ttnchie1/ap42/ch13/final/c13s0205.pdf.

[29] IS/MND, Appendix A, pdf 6.

emissions can be estimated from the EPA emission factor for construction activity of 1.2 tons per acre per month of activity.[30] Studies indicate that on average, PM10 accounts for 34% to 52% of the total suspended particulates (TSP) when watering is used for dust control.[31] Thus, earthmoving activities could generate up to 1.4 ton/mo of PM10 or 93 lb/day.[32] The SMAQMD PM10 and PM2.5 construction significance thresholds are zero (0) unless all feasible BACT/BMPs are applied, in which case they are 80 lb/day and 14.6 ton/yr for PM10 and 82 lb/day and 15 ton/yr for PM2.5.[33] Wind erosion PM10 emissions exceed the PM10 significance threshold of 80 lb/day, which assumes all feasible BACT/BMPs are applied.[34] All feasible BACT/BMPs are not required. These significant PM10 emissions must be mitigated by requiring all feasible BACT/BMPs plus additional mitigation to reduce wind erosion emission below significance thresholds.

2.1.3. Mitigation for Fugitive Dust Emissions

There are numerous feasible PM10 control methods that have been required in other CEQA documents and recommended by various air pollution control districts, including the Bay Area Air Quality Management District (BAAQMD)[35] and the South Coast Air Quality Management District (SCAQMD).[36] The following should be required for the Project:

1) Apply water every 4 hours to the area within 100 feet of a structure being demolished, to reduce vehicle trackout.

2) Use a gravel apron, 25 feet long by road width, to reduce mud/dirt trackout from unpaved truck exit routes.

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[30] AP-42, Section 13.2.3 Heavy Construction Operations, pdf 1; https://www3.epa.gov/ttn/chief/ap42/ch13/final/c13s02-3.pdf.

[31] Ingrid P. S. Araujo, Dayana B. Costa, and Rita J. B. de Moraes, Identification and Characterization of Particulate Matter Concentrations at Construction Job Sites, *Sustainability*, v. 6, pp. 7666-7688, 2014, Table 5, https://ideas.repec.org/a/gam/jsusta/v6y2014i11p7666-7688d41878.html.

[32] Earthmoving TSP emissions = (1.2 ton TSP/acre-mo)(3.4 acres) = **4.1 ton TSP/mo.** Assuming 34% of the TSP is PM10, PM10 emissions = (4.1 ton TSP/mo)(0.34) = 1.4 ton PM10/mo.

[33] SMAQMD Threshold Significance Table.

[34] SMAQMD Thresholds of Significance Table.

[35] BAAQMD, CEQA Air Quality Guidelines, May 2017, Tables 8-2 and 8-2; https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en.

[36] SCAQMD, Fugitive Dust Mitigation Measure Tables; http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/mitigation-measures-and-control-efficiencies/fugitive-dust.

3) Apply dust suppressants (e.g., polymer emulsion) to disturbed areas upon completion of demolition.

4) Apply water to disturbed soils after demolition is completed or at the end of each day of cleanup.

5) Prohibit demolition activities when wind speeds exceed 25 mph.

6) Apply water every 3 hours to disturbed areas within a construction site.

7) Require minimum soil moisture of 12% for earthmoving by use of a moveable sprinkler system or a water truck. Moisture content can be verified by lab sample or moisture probe.

8) Limit on-site vehicle speeds (on unpaved roads) to 15 mph by radar enforcement.

9) Replace ground cover in disturbed areas as quickly as possible.

10) All trucks hauling dirt, sand, soil, or other loose materials are to be tarped with a fabric cover and maintain a freeboard height of 12 inches.[37]

2.1.4. Mitigation for Construction Exhaust Emissions

The significant NOx and PM10 emissions from construction equipment exhaust can be mitigated using the measures discussed below.

- *Selective Catalytic Reduction*

NOx emissions from lower tier construction equipment (i.e., Tiers 1, 2, 3) can be reduced by installing selective catalytic reduction (SCR). An SCR can reduce NOx emissions from 75% to 90% while simultaneously reducing VOC emissions by up to 80% and PM emissions by 20% to 30%. SCR systems have been successfully demonstrated on off-road vehicles.[38] For example, the City of Houston Diesel Field Demonstration Project has demonstrated an 84% reduction in NOx emissions by using a diesel particulate filter (DPF)/SCR combination on a 1992 MY Cummins Gradall G3WD

[37] SCAQMD, Fugitive Dust Mitigation Measure Table XI-A, http://www.aqmd.gov/docs/default-source/ceqa/handbook/mitigation-measures-and-control-efficiencies/fugitive-dust/fugitive-dust-table-xi-a.doc?sfvrsn=2.

[38] Manufacturers of Emission Controls Association (MECA), Retrofitting Emission Controls on Diesel-Powered Vehicles, pp. 2-3, April 2006; http://www.meca.org/galleries/files/dieselretrofitwp.pdf. See also MECA 3/6, p. 17.

(5.9L 190 hp). As a result of this field demonstration program, the City of Houston retrofitted 33 rubber tire excavators and a dump truck with SCR systems.[39]

- *Lean NOx Catalysts*

Lean NOx catalyst (LNC) technology can achieve a 10% to 40% reduction in NOx emissions. LNC technology does not require any core engine modifications and can be used to retrofit older engines. This retrofit technology can be combined with Diesel Particulate Filters (DPFs) or diesel oxidation catalysts (DOCs) to provide both NOx and PM10 reductions. An LNC added to an exhaust system using a DPF can reduce NOx emissions from 10% to 25%.[40] Lean NOx catalyst technology has been demonstrated and commercialized for a variety of off-road retrofit applications, including heavy-duty earthmoving equipment.[41]

- *Exhaust Gas Recirculation*

Exhaust gas recirculation (EGR) reduces NO_x by reducing the temperature at which fuel burns in the combustion chamber. Engines employing EGR recycle a portion of engine exhaust back to the engine air intake. The oxygen-depleted exhaust gas is mixed into the fresh air that enters the combustion chamber, which dilutes the oxygen content of the air in the combustion chamber. This reduction in oxygen reduces the engine burn temperature, and hence reduces NOx emissions.[42] Engine retrofits with low-pressure EGR in conjunction with a diesel particulate filter can achieve NOx reductions of over 40% and PM reductions of more than 90%, and have been successfully demonstrated on off-road equipment.[43]

- *Other Engine Exhaust Mitigation Measures*

Other mitigation measures that are feasible and have been required elsewhere to reduce NOx and PM10 from construction equipment exhaust include:

- Use alternative fueled equipment (e.g., propane), where available;
- Limit engine idling to 2 minutes for delivery trucks and dump trucks;
- Purchase offsets;

[39] MECA 03/06, p. 12.

[40] MECA 03/06, p. 14.

[41] MECA 03/06, p. 19.

[42] Diesel Technology Forum, Retrofit; https://www.dieselforum.org/files/dmfile/Retrofitting-America-s-Diesel-Engines-11-2006.pdf.

[43] MECA 04/06, p. 14.

- Employ a construction site manager to verify that engines are properly maintained and to maintain a log.

2.1.5. Other Construction Mitigation

Further, off-site mitigation can be used to reduce significant construction NOx and PM10 emissions if feasible on-site mitigation measures are not available for both NOx and particulate matter emissions.[44] Voluntary Emission Reduction Agreements or VERAs have been used as CEQA mitigation. A VERA would require the Applicant to make a one-time payment for its significant unmitigated emissions in excess of significance thresholds to the SMAQMD, which would then use the payment to develop off-site mitigation.

VERAs have been identified as mitigation measures within other CEQA documents.[45] Types of projects that have been funded include electrification of stationary internal combustion engines and replacing old heavy-duty trucks with new, cleaner, more efficient heavy-duty trucks. The San Joaquin Valley Air Pollution Control District (SJVAPCD) has repeatedly concluded that a VERA "is a feasible mitigation measure under CEQA, effectively achieving emission reductions necessary to reduce impacts to a less than significant level."[46]

This approach has been found legally sufficient by court rulings in the following cases: *California Building Industry Assn. v. San Joaquin Valley APCD*, Fresno County Case No. 06 CECG 02100 DS13; *National Association of Home Builders v. San Joaquin Valley Unified Air Pollution Control District*; Federal District Court, Eastern District of California, Case No. 1:07-CV-00820-LJO-DLB; and *Center for Biological Diversity et al v Kern County*, Fifth Appellate District, Case No. F061908.

2.1.6. Recommended Construction Mitigation Measures

The following frequently recommended measures to control emissions of PM10 and NOx from construction equipment, which have been required in other CEQA documents and recommended by other air pollution control districts (e.g., BAAQMD[47]) and public agencies should be required for the Project. The following is a partial list:

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[44] SLOCAPCD CEQA Guidance, Attach 1, Clarifications, p. 2, pdf 67 and pp. 17-18.

[45] SJVAPCD, Summary of Comments and Responses to Proposed Revisions to the GAMAQI-2012, May 31, 2012, p. 3; https://www.valleyair.org/transportation/GAMAQIDRAFT-2012/GAMAQIResponsetoComments5-10-12%20.pdf.

[46] SJVAPCD 2017, pp. 5, 9.

[47] Bay Area Air Quality Management District (BAAQMD), California Environmental Quality Act (CEQA) Air Quality Guidelines, Updated May 2017, Tables 8-2 and 8-2;

- Maintain all construction equipment in proper tune according to manufacturer's specifications and use an ASE-certified mechanic to check the equipment and determine it to be running in proper condition before it is operated (CalAm IS/MND;[48] Chevron FEIR[49]).
- Diesel-powered equipment shall be replaced by gasoline-powered equipment whenever feasible (CalAm IS/MND, Chevron FEIR).
- The engine size of construction equipment shall be the minimum practical size (CalAm IS/MND).
- Catalytic converters shall be installed on gasoline-powered equipment (CalAm IS/MND).
- Signs shall be posted in designated queuing areas and job sites to remind drivers and operators of the idling limit (CalAm IS/MND, Chevron FEIR).
- Diesel equipment idling shall not be permitted within 1,000 feet of sensitive receptors (CalAm IS/MND).
- Engine size of construction equipment shall be the minimum practical size (CalAm IS/MND).
- Construction worker trips shall be minimized by providing options for carpooling and for lunch on site (CalAm IS/MND, Chevron FEIR).
- Use alternative diesel fuels, such as renewable diesel, Aquazole fuel, Clean Fuels Technology (water emulsified diesel fuel), or O2 diesel ethanol-diesel fuel (O2 Diesel) in existing engines (Monterey County General Plan EIR).[50]

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https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en.

[48] SWCA Environmental Consultants, Draft Initial Study and Mitigated Negative Declaration for the California American Water Slant Test Well Project, Prepared for City of Marina, May 2014 (CalAm IS/MND).

[49] Chevron Refinery Modernization Project EIR, March 2014, Chapter 4.8, Greenhouse Gases, https://s3.amazonaws.com/chevron/Volume+1_DEIR_r1.pdf and Chapter 5, Mitigation Measure Monitoring and Reporting Program, https://s3.amazonaws.com/chevron/Final+EIR/5_MMRP.pdf.

[50] Monterey County General Plan EIR, Section 6.4.3.3, p. 6-14 ("The EIRs prepared for the desalination plants are expected to require that construction equipment use alternative fuels or other means to reduce their emissions of ozone precursors. Although, depending upon the intensity of construction, there is the potential for a significant impact on air quality from ozone precursors."); https://www.co.monterey.ca.us/home/showdocument?id=44010. See also Union of Concerned Scientists, Digging Up Trouble: The Health Risks of Construction Pollution in California, November 2006, pp. 23-24; https://www.ucsusa.org/sites/default/files/2019-10/digging-up-trouble.pdf.

- Modify engines with ARB verified retrofits.
- Repower engines with Tier 4 Final diesel technology.[51]
- Convert part of the construction truck fleet to natural gas.[52]
- Use new or rebuilt equipment.
- Use diesel-electric and hybrid construction equipment.[53]
- Use low rolling resistance tires on long-haul class 8 tractor-trailers.[54]
- Use idle reduction technology, defined as a device that is installed on the vehicle that automatically reduces main engine idling and/or is designed to provide services (e.g., heat, air conditioning, and/or electricity) to the vehicle or equipment that would otherwise require the operation of the main drive engine while the vehicle or equipment is temporarily parked or is stationary.[55]

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[51] Union of Concerned Scientists, November 2009, p. 23.

[52] This is a mitigation measure used by PG&E to offset NOx emissions from its Otay Mesa Generating Project. See: GreenBiz, Natural Gas Trucks to Offset Power Plant Emissions, September 12, 2000, http://www.greenbiz.com/news/2000/09/12/natural-gas-trucks-offset-power-plant-emissions.

[53] Tom Jackson, How 3 Diesel-Electric and Hybrid Construction Machines are Waging War on Wasted Energy, *Equipment World*, June 1, 2014, http://www.equipmentworld.com/diesel-electric-and-other-hybrid-construction-equipment-are-waging-war-on-wasted-energy/; Kenneth J. Korane, Hybrid Drives for Construction Equipment, *Machine Design*, July 7, 2009, http://machinedesign.com/sustainable-engineering/hybrid-drives-construction-equipment; Caterpillar's D7E Electric Drive Redefines Dozer Productivity, http://www.constructionequipment.com/caterpillars-d7e-electric-drive-redefines-dozer-productivity.

[54] EPA, Verified Technologies for SmartWay and Clean Diesel, Learn About Low Rolling Resistance (LRR) New and Retread Tire Technologies, https://www.epa.gov/verified-diesel-tech/learn-about-low-rolling-resistance-lrr-new-and-retread-tire-technologies; EPA, Verified Technologies for SmartWay and Clean Diesel, SmartWay Verified List for Low Rolling Resistance (LRR) New and Retread Tire Technologies, https://www.epa.gov/verified-diesel-tech/smartway-verified-list-low-rolling-resistance-lrr-new-and-retread-tire.

[55] EPA Names Idle Reduction Systems Eligible for Federal Tax Exemptions, March 2009; http://www.greenfleetmagazine.com/channel/green-operations/article/story/2009/03/epa-names-idle-reduction-systems-eligible-for-federal-excise-tax-exemptions-grn.aspx. See also: Idle Reduction, Wikipedia, https://en.wikipedia.org/wiki/Idle_reduction and Diesel Emissions Reduction Program (DERA): Technologies, Fleets and Project Information, Working Draft Version 1.0; https://nepis.epa.gov/Exe/ZyNET.exe/P100CVIS.TXT?ZyActionD=ZyDocument&Client=EPA&Index=2011+Thru+2015&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C11thru15%5CTxt%5C00000003%5CP100CVIS.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL.

- Implement EPA's National Clean Diesel Program.[56,57,58]
- Require that all construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of PM (BAAQMD).
- Require that all contractors use equipment that meets CARB's most recent certification standard for off-road heavy-duty diesel engines, i.e., Tier 4 engines.[59]
- Solicit bids that include these measures.

3. OPERATIONAL AIR QUALITY IMPACTS ARE SIGNIFICANT

3.1. IS/MND Emission Estimates Are Inconsistent with Supporting Appendix

The IS/MND reports the net change in operational emissions due to the Project as summarized in Table 1.

[56] Northeast Diesel Collaborative, Best Practices for Clean Diesel Construction: Successful Implementation of Equipment Specifications to Minimize Diesel Pollution, August 2012; https://www.northeastdiesel.org/pdf/construction/BestPractices4CleanDieselConstructionAug2012.pdf.

[57] U.S. EPA, Cleaner Diesels: Low-Cost Ways to Reduce Emissions from Construction Equipment, March 2007; https://archive.epa.gov/sectors/web/pdf/emission_0307.pdf.

[58] NEDC Model Contract Specification, April 2008; https://www.epa.gov/sites/production/files/2015-09/documents/nedc-model-contract-sepcification.pdf.

[59] BAAQMD, CEQA Guidelines, Updated May 2017, Table 8-3, Measure 13.

Table 1: Net Change in Operational Emissions[60]

Emissions Source	ROG	NO_X	PM_{10}	$PM_{2.5}$
	Daily Emissions (lb/day)			
Worker Commute Trips	<0.1	0.1	<0.1	<0.1
New Combined Heat and Power Generators[1]	97.9	123.8	77.5	77.5
Reduced Flaring by Waste Gas Burners	-2.6	-6.8	-1.2	-1.2
Reduced Flaring by Ground Flares	-2.6	-5.1	-1.2	-1.2
Shutdown of Steam-Generating Boilers	-0.1	-1.2	-0.4	-0.4
Displaced Generation of Natural Gas–Based Electricity	-28.6	-42.8	-26.7	-26.7
Displaced Steam Generation[2]	-5.9	-8.9	-5.5	-5.5
Total Net Daily Emissions[3]	58.3	59.1	42.6	42.6
SMAQMD Daily Mass Emission Thresholds	65	65	80	80
	Annual Emissions (tons/year)			
Worker Commute Trips	<0.1	<0.1	0.1	<0.1
New Combined Heat and Power Generators[1]	17.9	22.6	14.1	14.1
Reduced Flaring by Waste Gas Burners	-0.5	-1.2	-0.2	-0.2
Reduced Flaring by Ground Flares	-0.5	-0.9	-0.2	-0.2
Shutdown of Steam-Generating Boilers	-<0.1	-0.2	-0.1	-0.1
Displaced Generation of Natural Gas–Based Electricity	-5.2	-7.8	-4.9	-4.9
Displaced Steam Generation[2]	-1.1	-1.6	-1.0	-1.0
Total Net Annual Emissions[3]	10.6	10.8	7.7	7.7
SMAQMD Annual Mass Emission Thresholds	—	—	14.6	15

The supporting appendix reports operational emissions as summarized in Table 2.

Table 2: Net Change in Operational Emissions, Appendix A[61]

Daily Emissions

Source	ROG	NO_x	PM_{10}	$PM_{2.5}$
New Combined Heat and Power Generators[1]	97.9	123.8	77.5	77.5
Worker Commute Trips	0.03	0.1	0.1	0.03
Reduced Flaring by Waste Gas Burners	-1.4	-3.7	-0.6	-0.6
Reduced Flaring by Ground Flares	-1.4	-2.8	-0.6	-0.6
Shutdown of Steam-Generating Boilers	-0.1	-1.2	-0.4	-0.4
Displaced Generation of Natural Gas–Based Electricity	-28.6	-42.8	-26.7	-26.7
Displaced Steam Generation[2]	-5.9	-8.9	-5.5	-5.5
Total Net Daily Emissions	**60.5**	**64.6**	**43.7**	**43.7**
SMAQMD Daily Mass Emission Thresholds	**65**	**65**	**80**	**80**

Annual Emissions

Source	ROG	NO_x	PM_{10}	$PM_{2.5}$
units:	tons/year	tons/year	tons/year	tons/year
New Combined Heat and Power Generators[1]	17.9	22.6	14.1	14.1
Worker Commute Trips	0.004	0.02	0.10	0.03
Reduced Flaring by Waste Gas Burners	-0.3	-0.7	-0.1	-0.1
Reduced Flaring by Ground Flares	-0.3	-0.5	-0.1	-0.1
Shutdown of Steam-Generating Boilers	-<0.1	-0.2	-0.1	-0.1
Displaced Generation of Natural Gas–Based Electricity	-5.2	-7.8	-4.9	-4.9
Displaced Steam Generation[2]	-1.1	-1.6	-1	-1
Total Net Annual Emissions	11.0	11.8	8.00	7.9
SMAQMD Annual Mass Emission Thresholds	—	—	14.6	15

A comparison of these two tables indicates discrepancies in total net daily and annual emissions of all criteria pollutants. The emissions reported in Appendix A are uniformly higher than those reported in the IS/MND text. Documents produced in response to document requests indicate that the IS/MND emissions are superseded by

[60] IS/MND, Table 3.3-3, pdf 36.

[61] IS/MND, Appendix A, pdf 2.

the Appendix A emissions. As discussed below, the PM2.5 and NOx emissions in Appendix A are significant when errors and omissions are corrected.

3.1.1. Operational Emissions Are Unsupported

The operational emissions are summarized in a series of tables in Appendix A.[62] Each table reports emissions for a single source—for example, CHP engine emissions (Table 3.2-2), reduced flaring emissions (Table 3.2-3), reduced emissions from the shutdown of SRWTP's boilers (Table 3.3-4), and utility displacement emissions (Table 3.1-5). The calculations and assumptions supporting these emissions are not included in Appendix A. Thus, they were requested in requests for documents referenced in the IS/MND, which CEQA requires to be publicly available during the comment period.[63] The responses included an Excel spreadsheet captioned "Net Change in Operational Emissions of Criteria Pollutants and Precursors." This spreadsheet is included here as Table 3.

Table 3: Net Change in Operational Emissions of Criteria Air Pollutants and Precursors

Daily Emissions							
Source	ROG	NO_x	PM_{10}	$PM_{2.5}$	CO2e	units	source
New Combined Heat and Power Generators[1]	97.9	123.8	77.5	77.5	296,641	lb/day	Source 1
Worker Commute Trips	0.03	0.1	0.1	0.03	113	lb/day	worksheet: CalEEMod Output Summaries
Reduced Flaring by Waste Gas Burners	-1.4	-3.7	-0.6	-0.6	-5,426	lb/day	Source 1
Reduced Flaring by Ground Flares	-1.4	-2.8	-0.6	-0.6	-5,426	lb/day	Source 1
Shutdown of Steam-Generating Boilers	-0.1	-1.2	-0.4	-0.4	-3,672	lb/day	Source 1
Displaced Generation of Natural Gas–Based Electricity	-28.6	-42.8	-26.7	-26.7	-527,188	lb/day	Source 1
Displaced Steam Generation[2]	-5.9	-8.9	-5.5	-5.5	-109,218	lb/day	Source 1
Total Net Daily Emissions	**60.5**	**64.6**	**43.7**	**43.7**	-354,289	lb/day	Summation
SMAQMD Daily Mass Emission Thresholds	**65**	**65**	**80**	**80**	—	lb/day	Source 2 (SMAQMD 2020)
Annual Emissions							
Source	ROG	NO_x	PM_{10}	$PM_{2.5}$	CO2e	source	
units:	tons/year	tons/year	tons/year	tons/year	MTCO2e/yr		
New Combined Heat and Power Generators[1]	17.9	22.6	14.1	14.1	61,736	Source 1	
Worker Commute Trips	0.004	0.02	0.10	0.03	55	worksheet: CalEEMod Output Summaries	
Reduced Flaring by Waste Gas Burners	-0.3	-0.7	-0.1	-0.1	-899	Source 1	
Reduced Flaring by Ground Flares	-0.3	-0.5	-0.1	-0.1	-990	Source 1	
Shutdown of Steam-Generating Boilers	- <0.1	-0.2	-0.1	-0.1	-670	Source 1	
Displaced Generation of Natural Gas–Based Electricity	-5.2	-7.8	-4.9	-4.9	-87,307	Source 1	
Displaced Steam Generation[2]	-1.1	-1.6	-1	-1	-18,087	Source 1	
Total Net Annual Emissions	11.0	11.8	8.00	7.9	-46,162	Summation	
SMAQMD Annual Mass Emission Thresholds	—	—	14.6	15	10,000	Source 2 (SMAQMD 2020)	

This table also does not disclose the assumptions used to calculate the operational emissions summarized in Table 1. The major source of operational emissions are the new combined heat and power generators. It is standard practice, for example, to supply the vendor specification sheets and vendor guarantees for major pieces of equipment such as the generators and the selective catalytic reduction (SCR) system used to control NOx. Instead, the produced spreadsheet cites the source of the

[62] IS/MND, Appendix A, Tables 3.2-1 to 3.1-7.

[63] Letter from Sheila M. Sannadan to Christoph Dobson and Steve Nebozuk, Sacramento County Regional Sanitation District, Re: Request for Immediate Access to Documents Referenced in the Mitigated Negative Declaration – Regional San BioGeneration Facility Project, (May 17, 2021); *see also* Pub. Resources Code § 21092, subd. (b)(1) and 14 Cal. Code Regs. § 15072, subd. (g)(4).

calculations as "Source 1." Additional requests for "Source 1" were sent to the District.[64] Source 1 was not produced. Thus, the operational emissions are not supported and the IS/MND fails as an informational document under CEQA.

3.1.2. Operational NOx Emissions Are Significant

The revised daily NOx emissions in Appendix A are reported as 64.6 lb/day compared to a significance threshold of 65 lb/day. Table 2. Under SMAQMD CEQA guidance, emissions are significant if they "exceed" the threshold.[65] The Applicant's consultant recognized that "NOx emissions are just below 65 lb/day (at 64.6 lb/day). While that may draw some scrutiny, I believe it is defensible. I did not lower the NOx emission factor below the 11 ppm BACT level as the SCR implication of that would need to be considered. (A 1.0 reduction in the BACT limit would reduce daily NOx emissions by 11 lb/day.)"[66]

However, my review of the emission calculations identified many erroneous assumptions which, when corrected, result in daily NOx emissions that exceed 65 lb/day. Thus, operational NOx emissions are significant and unmitigated. My analysis below indicates that NOx emissions exceed the 65 lb/day significance threshold as follows:

- Using the correct heat rate for Carson raises daily NOx emissions by 9.3 lb/day;
- Using Cosumnes as the marginal plant raises NOx emissions by a further 8.5 lb/day;
- Accounting for the intermittency of flaring raises NOx emissions by 6.5 lb/day on days with no flaring (flaring only occurs 40% of the time).
- If steam generation were 71% efficient instead of the assumed 66%, NOx emissions would increase by 0.6 lb/day;
- If the current steam generation used waste heat rather than burning fuel, NOx would increase by an additional 8.9 lb/day.

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[64] Email from Sheila M. Sannadan to Christoph Dobson and Steve Nebozuk, RE: Request for Immediate Access to Documents Referenced in the Mitigated Negative Declaration – Regional San BioGeneration Facility Project, (May 21, 2021); Email from Sheila M. Sannadan to Steve Nebozuk, RE: BioGeneration Facility AQ Appendix Files, (June 1, 2021).

[65] Sacramento Metropolitan Air Quality Management District (SMAQMD), Guide to Air Quality Assessment in Sacramento County (CEQA Guide), Chapter 4, p. 4, pdf 6; http://www.airquality.org/LandUseTransportation/Documents/Ch4OperationalFinal10-2020.pdf.

[66] Email from Allan Daly, Trinity Consultants, to Jennifer Marcheck and Austin Kerr, Re Regional San CHP Air Quality Analysis, March 5, 2021.

Each of these defensible changes to the IS/MND's calculations would, by itself, raise the IS/MND's estimate of net NOx emissions from 64.5 lb/day to over 65 lb/day. Thus, operational NOx emissions are significant and unmitigated.

- *Reduced Emissions from Electricity Generation by SMUD*

a. Assuming the displaced energy comes from the Carson plant

The IS/MND assumes that the electricity generated by the Project would result in reduced electricity generation by the Sacramento Municipal Utility District (SMUD) at gas-fired power plants in the SMUD service area. This is a reasonable assumption. The IS/MND further assumes that the particular plant at which the reduced SMUD generation would occur is the combined cycle gas turbine (CCGT) portion of the Carson plant, based on reductions occurring at "the oldest and least efficient natural gas-fueled power plant."[67] This assumption is reasonable if and only if Carson would otherwise be operating. The proposed Project would operate 24 hrs/day. During low-load hours (e.g., early a.m. hours and/or weekend hours), the Carson plant is likely to be turned off already, and thus reduced SMUD generation due to the new Regional San generator would have to displace some other SMUD generator.

The fact that Carson is not always available to be turned down can be seen in CEC data for the Carson plant. Over the last 5 years (2016–2020, inclusive), Carson has operated at an average annual capacity factor of 47.5%, and in 2020 it operated at an average capacity factor of only 35.1%.[68] As SMUD, along with the rest of California, transitions to a renewable energy-based electrical sector, that capacity factor can only decrease.

Thus, a more reasonable assumption for the IS/MND's emission calculations would be that the **annual** electricity generation displaced by the new facility will come only partially from Carson, and the rest from SMUD's more efficient (but still gas-fired) Cosumnes combined cycle plant. Cosumnes already runs more than Carson[69] and is

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[67] IS/MND, p. 3-16, first bullet. Note that there is also a standalone combustion turbine (CT) at Carson, which is less efficient than the CCGT used in the IS/MND's calculations. The IS/MND correctly did not assume that the less efficient CT would be displaced, because the average 5-year capacity factor of the CT is only 3.1% and it is thus rarely available for displacement. See the following footnote for the source for this number.

[68] See attached spreadsheet, Exhibit 2, lines 1-14, based entirely on CEC data from https://ww2.energy.ca.gov/almanac/electricity_data/web_qfer/plant_stats_2_cms.php?PlantValue=G0085.

[69] The five-year average capacity factor for Cosumnes has been over 72%, half again as much as Carson. In the most recent full year, 2020, Cosumnes had a 79.6% capacity factor, more than twice as high as Carson. See the attached spreadsheet, Exhibit 2, lines 21-29, based entirely on CEC data from https://ww2.energy.ca.gov/almanac/electricity_data/web_qfer/plant_stats_2_cms.php?PlantValue=G0889.

likely to be online in hours when Carson is not. Longer term, Cosumnes is likely to remain in operation (and thus be displaceable by the Project) after Carson has been either retired or shifted to operating only intermittently as a backup for renewable generation. Even in the near term, there will be individual days when Carson will not be running but Cosumnes will be, and thus the maximum **daily** emissions impact of the Project should be based on displacing Cosumnes, not Carson.

b. Assuming an incorrect heat rate for Carson

The IS/MND assumes a heat rate for the Carson CCGT of 11,998 Btu/kwh.[70] This is simply wrong. In the last five years, the Carson CCGT has never had an annual average heat rate above 10,000 Btu/kwh, and it has averaged 9,379 Btu/kwh, which is 21.83% lower than assumed in the IS/MND.[71] If the IS/MND had used the correct Carson CCGT heat rate, fewer Btus of gas would be displaced by the 15 MW of proposed new generation and thus less NOx would be avoided. This would result in greater net NOX emissions attributable to the Project.

c. Quantifying the effect on NOx emissions due to incorrect IS/MND assumptions about displaced electricity generation

The IS/MND assumes that the Project will displace 15 MW of Carson CCGT electricity generation and that electricity generation would have required 11,998 Btu per kwh. It thus estimates, after taking into account line losses, reduced gas-burning to generate electricity at Carson of 1,668,171 MMBtu, with consequent reduced NOx emissions at Carson of 7.81 ton/yr[72] or 42.8 lb/day.[73] If the actual Btu content of gas burning required to produce 15 MW of electricity at Carson were 21.83% lower, based on the actual Carson CCGT average heat rate of 9,379 Btu/kwh instead of 11,998 Btu/kwh, then the displaced NOx emissions would also be 21.83% lower. Thus, Carson CCGT emissions reductions are overstated in the IS/MND by 42.8 lb/day x 21.83%, or a little over 9.3 lb/day.

On days when Carson is not operating but Cosumnes is operating, the IS/MND has overestimated the NOx impacts of the Project by even more. Cosumnes has a 5-year

[70] IS/MND, Appendix A, pdf 120.

[71] See spreadsheet, Exhibit 2, lines 1-14, based entirely on CEC data from https://ww2.energy.ca.gov/almanac/electricity_data/web_qfer/plant_stats_2_cms.php?PlantValue=G0085. Thus, 9379/11,998 = 0.7817, meaning that the actual heat rate has been 1 - 0.7817 = 0.2183 = 21.83% lower than the rate assumed in the IS/MND.

[72] IS/MND, Appendix A, pdf p. 118 of 142.

[73] 7.81 ton/yr x 2000 lb/ton x 1 year/365 days = 42.8 lb/day. See also IS/MND, p. 3-16, Table 3.3-3.

average heat rate of just 7,005 Btu/kwh.[74] That is 41.62% less than the heat rate assumed in the IS/MND for displaced electric generation.[75] If the actual Btu of gas burning required to produce 15 MW of electricity at Carson were 41.62% lower, based on the actual Cosumnes CCGT average heat rate of 7005 Btu/kwh instead of 11,998 Btu/kwh, then the displaced NOx emissions would also be 41.62% lower. Thus, maximum daily emissions reductions are overstated in the IS/MND by 42.8 lb/day x 41.62%, or 17.8 lb/day.

In sum, the IS/MND understates the likely net NOx emissions attributable to the Project by an average of 9.3 lb/day due to using an incorrect heat rate for Carson and by a further 8.5 lb/day[76] for days when the displaced electricity generation is at Cosumnes (because Carson is already not running). Because the IS/MND calculates net NOx emissions of 64.5 lb/day,[77] correcting it for the right Cosumnes heat rate would increase net NOx emissions to 64.5 + 9.3 = 73.8 lb/day. On days when the marginal source of SMUD energy is Cosumnes, the net NOx emissions would further increase to 73.8 + 8.5 = 82.3 lb/day.

d. Reduced flaring

The IS/MND assumes flaring would be eliminated by the Project and calculates a reduction in NOx emissions due to elimination of flaring equal to 6.5 lb/day.[78] This number is calculated based on an assumption that without the Project, 10% of the biogas produced on site by Regional San would need to be flared, 40% of the time.[79] The IS/MND does not supply any documentation for either the 10% number or the 40% number. Even if they are correct, there would be no flaring 60% of the time. Thus, the worst-case daily emissions will not include any reductions due to avoided flaring and the IS/MND overstates worst-case day emissions by some 6.5 lb/day due to assuming flaring reductions occur on all days.

e. Displaced steam usage

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[74] See the attached spreadsheet, Exhibit 2, lines 21-29, based entirely on CEC data from https://ww2.energy.ca.gov/almanac/electricity_data/web_qfer/plant_stats_2_cms.php?PlantValue=G0889.

[75] 7005/11998 = 0.5838. Thus 7005 Btu/kwh is 1-0.5838 = 0.4162 = 41.62% less than the 11,998 Btu/kwh assumed in the IS/MND.

[76] 17.8 lb/day based on the Cosumnes heat rate, minus 9.3 lb/day already accounted for by correcting the Carson heat rate: 17.8 - 9.3 = 8.5 lb/day.

[77] IS/MND, Appendix A, pdf 95 of 142, Table 3.1-6. Note that the IS/MND itself has different numbers because of different assumptions regarding flaring emissions. Cf. IS/MND, p. 3-16, Table 3.3-3.

[78] Ibid.

[79] IS/MND, Appendix A, pdf p. 94 of 142, Table 3.2-3, footnote a.

The IS/MND calculates that reduced steam usage will reduce NOx emissions by 8.9 tons/day.[80] This number is calculated based on reduced steam usage by Regional San with an energy content of 228,093 MMBtu, which in turn reduces fuel burning by 345,596 MMBtu.[81] The difference between the two Btu numbers is due to an assumed thermal efficiency of only 66% to produce the steam.[82]

The IS/MND provides no documentation for the assumed 66% efficiency. It merely states that "Displaced thermal production is greater than the heating value of the steam provided to SRTWTP shown in Table 3.1-3 due to inefficiency losses."[83] If steam for Regional San is currently being produced using waste heat from electricity generation at the Carson cogeneration plant, heat that would otherwise be discharged to the atmosphere, then there is actually zero incremental fuel being burned to produce that steam, and thus zero NOx emissions to be saved by the Project. But even if there is fuel consumption currently required to produce steam for Regional San, and thus emission reductions attributable to the Project, those reductions may not be as large as calculated in the IS/MND. For example, if the efficiency of the current steam production is 71% rather than 66%, then the NOx reduction due to displaced steam production would fall from 8.9 ton/day to 8.3 ton/day,[84] and the net NOx emissions of the Project would rise from 64.5 lb/day to 65.1 lb/day.[85] Higher current efficiencies would result in even smaller savings and thus even higher net NOX emissions. The IS/MND needs to be amended to document the basis for the claimed steam generation efficiency of only 66% and explain why it would continue to be so low if the proposed Project were not built.

3.1.3. Operational Annual PM2.5 and PM10 Emissions Are Significant

The Project will emit significant amounts of PM2.5 and PM10 precursors. The U.S. EPA has determined that sulfur dioxide (SO_2); oxides of nitrogen (NOx); reactive

[80] IS/MND, Appendix A, pdf p. 95 of 142, Table 3.1-6; IS/MND, p. 3-16, Table 3.3-3.

[81] IS/MND, Appendix A, pdf p. 118 of 142.

[82] IS/MND, Appendix A, pdf p. 112 of 142, item 21. As confirmation, 228093/345596 = 0.66000 = 66%.

[83] IS/MND, Appendix A, pdf p. 95 of 142, Table 3.1-5, footnote a.

[84] 8.9 ton/day at 66% efficiency implies 8.9 ton/day *0.66/0.71 = 8.27 ton/day at 71% efficiency, which rounds to 8.3 ton/day.

[85] 64.5 ton/day (ISMND, Appendix A, pdf p. 95 of 142, Table 3.1-6) +8.9 ton/day - 8.3 ton/day = 65.1 ton/day.

organic gases ROG); and ammonia (NH_3) [86,87] are precursors to PM10, as identified in the Code of Federal Regulations.[88] The Project will emit all these precursors.

An SCR will be used to control NOx emissions from the diesel generators.[89] An SCR is a NOx control device in which urea,[90] an ammonia compound, is injected into the flue gas and reacts with NOx in the presence of a catalyst, converting the NOx into nitrogen gas (N_2). Ammonia that does not react with NOx is emitted as "ammonia slip." The Project design ammonia slip limit is 10 ppmvd NH_3 at 15% O_2.[91] Ammonia slip is converted into PM2.5 (a subset of PM10) in the atmosphere. The estimates of PM2.5 and PM10 in the IS/MND do not include the precursor PM2.5 and PM10 emissions from the SCR ammonia slip or precursor PM2.5 and PM10 emissions formed in the atmosphere from direct emissions of ROG, SO_2, and NOx. When these sources of PM2.5 and PM10 are included in the emission estimates, annual PM2.5 and PM10 emissions are significant and unmitigated.

- *Ammonia Slip*

IS/MND Appendix A estimated maximum NH_3 emissions of 7.59 ton/yr.[92] Assuming 100% of this NH_3 is converted into PM2.5 in the atmosphere, total PM2.5

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[86] SJVAPCD, Demonstration of NH3 Precursor Contributions to PM2.5 in the San Joaquin Valley; http://www.valleyair.org/workshops/postings/2019/04-15-19_rules/nh3.pdf; Julia Lester, Ammonia: A Particulate Matter Precursor, https://www.blogs.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs143_008858.pdf; European Commission, Greater Efforts to Reduce Ammonia Emissions Needed to Meet Air Pollution Targets, December 18, 2014; https://ec.europa.eu/environment/integration/research/newsalert/pdf/greater_efforts_to_cut_ammonia_emissions_needed_to_reduce_air_pollution_targets_398na4_en.pdf; U.S. EPA, Fact Sheet, Final Rule: Fine Particulate Matter National Ambient Air Quality Standards: State Implementation Plan Requirements; https://www.epa.gov/sites/production/files/2016-07/documents/fact-sheet-final-pm25-impl-rule.pdf ; Memorandum from Stephen D. Page to Regional Air Division Directors, Re: Draft PM2.5 Precursor Demonstration Guidance, November 17, 2016; https://www.epa.gov/sites/production/files/2016-11/documents/transmittal_memo_and_draft_pm25_precursor_demo_guidance_11_17_16.pdf.

[87] U.S. EPA, Fact Sheet, Final Rule: Fine Particulate Matter National Ambient Air Quality Standards: State Implementation Plan Requirements; https://www.epa.gov/sites/production/files/2016-07/documents/fact-sheet-final-pm25-impl-rule.pdf; Memorandum from Stephen D. Page to Regional Air Division Directors, Re: Draft PM2.5 Precursor Demonstration Guidance, November 17, 2016; https://www.epa.gov/sites/production/files/2016-11/documents/transmittal_memo_and_draft_pm25_precursor_demo_guidance_11_17_16.pdf.

[88] 40 CFR § 51.1000.

[89] IS/MND, pdf 2, 17, 18.

[90] IS/MND, pdf 18.

[91] IS/MND, Appendix A, pdf 99 (Ammonia (NH3) Slip = 10 ppmvd @ 15% O2.

[92] IS/MND, Appendix A, pdf 102.

emissions would increase from 7.9 ton/yr reported in Appendix A[93] to 15.49 ton/yr,[94] which exceeds the annual PM2.5 significance threshold of 15 ton/yr and is thus a significant PM2.5 impact. Alternatively, assuming 100% of the NH_3 is converted into PM10 in the atmosphere, total PM10 emissions would increase from 8.0 ton/yr to 15.59 ton/yr, exceeding the PM10 annual significance threshold of 14.6 ton/yr and thus would be a significant PM10 impact.

- *Criteria Pollutants*

Alternatively, assuming in the worst case that 100% of the ROG (11.0 ton/yr), NOx (11.8 ton/yr),[95] and SOx (13.87 ton/yr)[96] would contribute to ambient PM10 concentrations, PM10 precursor emissions would be 36.7 ton/yr, exceeding the PM10 significance threshold of 14.6 ton/yr. When combined with the reported direct PM10 emissions of 8.0 ton/yr, total PM10 direct and precursor emissions would be 44.7 ton/yr, exceeding the significance threshold of 14.6 ton/yr.

In sum, annual PM10 and PM2.5 emissions are significant when secondary PM2.5 and PM10 emissions are included in the emission calculations.

4. CUMULATIVE IMPACTS

"Cumulatively considerable" under CEQA means that "the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects."[97] When the incremental effect of a project is cumulatively considerable, the lead agency must evaluate cumulative impacts in an EIR.[98]

The plain language of this section of CEQA (i.e., "the effects of past projects, the effects of other current projects, and the effects of probable future projects") requires the identification of other projects that will be constructed and/or operating over the same time period as the subject project and the analysis of these projects together with the Project being reviewed. Thus, cumulative impacts can be determined by identifying past projects, other current projects, and probable future projects and their impacts. The IS/MND concluded that all cumulative impacts were less than significant without

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[93] IS/MND, Appendix A, pdf 2 (summarized in table captioned: "Net Change in Operational Emissions of Criteria Air Pollutants and Precursors").

[94] Revised PM2.5 annual emissions = 7.9 + 7.59 = **15.49 ton/yr.**

[95] IS/MND, Appendix A, pdf 2.

[96] IS/MND, Appendix A, pdf 101 (SOx = 13.87 ton/yr).

[97] CEQA Guidelines §15064(h)(1).

[98] CEQA Guidelines §15064.

identifying any past projects, other current projects, and probably future projects and their impacts.

There are 4,358 projects under development in Sacramento County, many in proximity to the Project.[99] These include the Echo Water Project,[100] which is a major upgrade to the Sacramento Regional Wastewater Treatment plant, located at the same site as the Project.[101] Construction of this project is underway and projected to be complete in between 2021 and 2023. Thus, its construction will overlap with that of the instant Project. The construction and operation of other projects, identified in the link at footnote 101, also will overlap with the proposed Project. The IS/MND fails as an informational document under CEQA for not evaluating cumulative impacts of these projects. This is a serious omission.

[99] Sacramento County, Planning Projects Viewer; https://planningdocuments.saccounty.net/.

[100] EchoWater Project, Sacramento, California; https://www.water-technology.net/projects/echowater-project-sacramento-california/. See also EchoWater Fast Facts; https://www.regionalsan.com/sites/main/files/file-attachments/echowater_summary_fact_sheet.pdf?1601047808.

[101] Largest Sacramento Area Public Construction Projects, Ranked by Estimated Construction Costs, August 31, 2020; https://www.bizjournals.com/sacramento/subscriber-only/2020/08/28/construction-projects-public.html.

EXHIBIT 1

Phyllis Fox, Ph.D, PE
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Rockledge, FL 32955
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Dr. Fox has over 40 years of experience in the field of environmental engineering, including air pollution control (BACT, BART, MACT, LAER, RACT), greenhouse gas emissions and control, cost effectiveness analyses, water quality and water supply investigations, hydrology, hazardous waste investigations, environmental permitting, nuisance investigations (odor, noise), environmental impact reports, CEQA/NEPA documentation, risk assessments, and litigation support.

EDUCATION

Ph.D. Environmental/Civil Engineering, University of California, Berkeley, 1980.
M.S. Environmental/Civil Engineering, University of California, Berkeley, 1975.
B.S. Physics (with high honors), University of Florida, Gainesville, 1971.

REGISTRATION

Registered Professional Engineer: Arizona (2001-2014: #36701; retired), California (2002-present; CH 6058), Florida (2001-2016; #57886; retired), Georgia (2002-2014; #PE027643; retired), Washington (2002-2014; #38692; retired), Wisconsin (2005-2014; #37595-006; retired)
Board Certified Environmental Engineer, American Academy of Environmental Engineers, Certified in Air Pollution Control (DEE #01-20014), 2002-2014; retired)
Qualified Environmental Professional (QEP), Institute of Professional Environmental Practice (QEP #02-010007, 2001-2015: retired).

PROFESSIONAL HISTORY

Environmental Management, Principal, 1981-present
Lawrence Berkeley National Laboratory, Principal Investigator, 1977-1981
University of California, Berkeley, Program Manager, 1976-1977
Bechtel, Inc., Engineer, 1971-1976, 1964-1966

PROFESSIONAL AFFILIATIONS

American Chemical Society (1981-2010)
Phi Beta Kappa (1970-present)
Sigma Pi Sigma (1970-present)
Who's Who Environmental Registry, PH Publishing, Fort Collins, CO, 1992.
Who's Who in the World, Marquis Who's Who, Inc., Chicago, IL, 11th Ed., p. 371, 1993-present.

Who's Who of American Women, Marquis Who's Who, Inc., Chicago, IL, 13th Ed., p. 264, 1984-present.
Who's Who in Science and Engineering, Marquis Who's Who, Inc., New Providence, NJ, 5th Ed., p. 414, 1999-present.
Who's Who in America, Marquis Who's Who, Inc., 59th Ed., 2005.
Guide to Specialists on Toxic Substances, World Environment Center, New York, NY, p. 80, 1980.
National Research Council Committee on Irrigation-Induced Water Quality Problems (Selenium), Subcommittee on Quality Control/Quality Assurance (1985-1990).
National Research Council Committee on Surface Mining and Reclamation, Subcommittee on Oil Shale (1978-80)

REPRESENTATIVE EXPERIENCE

Performed environmental and engineering investigations, as outlined below, for a wide range of industrial and commercial facilities including: petroleum refineries and upgrades thereto; reformulated fuels projects; refinery upgrades to process heavy sour crudes, including tar sands and light sweet crudes from the Eagle Ford and Bakken Formations; petroleum, gasoline and ethanol distribution terminals; coal, coke, and ore/mineral export terminals; LNG export, import, and storage terminals; crude-by-rail projects; shale oil plants; crude oil/condensate marine and rail terminals; coal gasification and liquefaction plants; oil and gas production, including conventional, thermally enhanced, hydraulic fracking, and acid stimulation techniques; underground storage tanks; pipelines; compressor stations; gasoline stations; landfills; railyards; hazardous waste treatment facilities; nuclear, hydroelectric, geothermal, wood, biomass, waste, tire-derived fuel, gas, oil, coke and coal-fired power plants; wind farms; solar energy facilities; battery energy storage facilities; landfill gas-to-energy facilities; transmission lines; airports; hydrogen plants; petroleum coke calcining plants; coke plants; activated carbon manufacturing facilities; asphalt plants; cement plants; chlor-alkali production facilities; incinerators; flares; manufacturing facilities (e.g., semiconductors, electronic assembly, aerospace components, printed circuit boards, amusement park rides); lanthanide processing plants; ammonia plants; nitric acid plants; urea plants; food processing plants; wineries; almond hulling facilities; composting facilities; grain processing facilities; grain elevators; ethanol production facilities; soy bean oil extraction plants; biodiesel plants; paint formulation plants; wastewater treatment plants; marine terminals and ports; gas processing plants; steel mills; iron nugget production facilities; pig iron plant, based on blast furnace technology; direct reduced iron plant; acid regeneration facilities; railcar refinishing facility; battery manufacturing plants; pesticide manufacturing and repackaging facilities; pulp and paper mills; olefin plants; methanol plants; ethylene crackers; alumina plants, desalination plants; battery storage facilities; data centers; covered lagoon anaerobic digesters with biogas generators and upgrading equipment to produce renewable natural gas and electricity; selective catalytic reduction (SCR) systems; selective

noncatalytic reduction (SNCR) systems; halogen acid furnaces; contaminated property redevelopment projects (e.g., Mission Bay, Southern Pacific Railyards, Moscone Center expansion, San Diego Padres Ballpark); residential developments; commercial office parks, campuses, and shopping centers; server farms; transportation plans; electrification proposals; and a wide range of mines including sand and gravel, hard rock, limestone, nacholite, coal, molybdenum, gold, zinc, and oil shale.

EXPERT WITNESS/LITIGATION SUPPORT

- For plaintiffs-intervenors (Sierra Club), in civil action relating to alleged violations of the Clean Air Act, Prevention of Significant Deterioration, for historic modifications at Rush Island Units 1 and 2 and Labadie Energy Center, assist counsel in evaluating best available control technology (BACT) to reduce SO2 emissions, including wet and dry scrubbing, sorbent injection, and offsets. Case settled. *U.S. and Sierra Club vs. Ameren Missouri*, Case No. 4-11 CV 77 RWS, U.S. District Court, Eastern District of Missouri, Eastern Division, September 30, 2019.
- For the California Attorney General, assist in determining compliance with probation terms in the matter of People v. Chevron USA.
- For plaintiffs, assist in developing Petitioners' proof brief for National Parks Conservation Association et al v. U.S. EPA, Petition for Review of Final Administrative Action of the U.S. EPA, In the U.S. Court of Appeals for the Third Circuit, Docket No. 14-3147.
- For plaintiffs, expert witness in civil action relating to alleged violations of the Clean Air Act, Prevention of Significant Deterioration, for historic modifications (1997-2000) at the Cemex cement plant in Lyons, Colorado. Reviewed produced documents, prepared expert and rebuttal reports on PSD applicability based on NOx emission calculations for a collection of changes considered both individually and collectively. Deposed August 2011. *United States v. Cemex, Inc.*, In U.S. District Court for the District of Colorado (Civil Action No. 09-cv-00019-MSK-MEH). Case settled June 13, 2013.
- For plaintiffs, in civil action relating to alleged violations of the Clean Air Act, Prevention of Significant Deterioration, for historic modifications (1988 – 2000) at James De Young Units 3, 4, and 5. Reviewed produced documents, analyzed CEMS and EIA data, and prepared netting and BACT analyses for NOx, SO2, and PM10 (PSD case). Expert report February 24, 2010 and affidavit February 20, 2010. *Sierra Club v. City of Holland, et al.*, U.S. District Court, Western District of Michigan (Civil Action 1:08-cv-1183). Case settled. Consent Decree 1/19/14.
- For plaintiffs, in civil action alleging failure to obtain MACT permit, expert on potential to emit hydrogen chloride (HCl) from a new coal-fired boiler. Reviewed record, estimated HCl emissions, wrote expert report June 2010 and March 2013 (Cost to Install a Scrubber at the Lamar Repowering Project Pursuant to Case-by-Case MACT), deposed August 2010 and

March 2013. *Wildearth Guardian et al. v. Lamar Utilities Board*, Civil Action No. 09-cv-02974, U.S. District Court, District of Colorado. Case settled August 2013.

- For plaintiffs, expert witness on permitting, emission calculations, and wastewater treatment for coal-to-gasoline plant. Reviewed produced documents. Assisted in preparation of comments on draft minor source permit. Wrote two affidavits on key issues in case. Presented direct and rebuttal testimony 10/27 - 10/28/10 on permit enforceability and failure to properly calculate potential to emit, including underestimate of flaring emissions and omission of VOC and CO emissions from wastewater treatment, cooling tower, tank roof landings, and malfunctions. *Sierra Club, Ohio Valley Environmental Coalition, Coal River Mountain Watch, West Virginia Highlands Conservancy v. John Benedict, Director, Division of Air Quality, West Virginia Department of Environmental Protection and TransGas Development System, LLC*, Appeal No. 10-01-AQB. Virginia Air Quality Board remanded the permit on March 28, 2011 ordering reconsideration of potential to emit calculations, including: (1) support for assumed flare efficiency; (2) inclusion of startup, shutdown and malfunction emissions; and (3) inclusion of wastewater treatment emissions in potential to emit calculations.
- For plaintiffs, expert on BACT emission limits for gas-fired combined cycle power plant. Prepared declaration in support of CBE's Opposition to the United States' Motion for Entry of Proposed Amended Consent Decree. Assisted in settlement discussions. *U.S. EPA, Plaintiff, Communities for a Better Environment, Intervenor Plaintiff, v. Pacific Gas & Electric Company, et al.*, U.S. District Court, Northern District of California, San Francisco Division, Case No. C-09-4503 SI.
- Technical expert in confidential settlement discussions with large coal-fired utility on BACT control technology and emission limits for NOx, SO2, PM, PM2.5, and CO for new natural gas fired combined cycle and simple cycle turbines with oil backup. (July 2010). Case settled.
- For plaintiffs, expert witness in remedy phase of civil action relating to alleged violations of the Clean Air Act, Prevention of Significant Deterioration, for historic modifications (1998-99) at Gallagher Units 1 and 3. Reviewed produced documents, prepared expert and rebuttal reports on historic and current-day BACT for SO2, control costs, and excess emissions of SO2. Deposed 11/18/09. *United States et al. v. Cinergy, et al.*, In U.S. District Court for the Southern District of Indiana, Indianapolis Division, Civil Action No. IP99-1693 C-M/S. Settled 12/22/09.
- For plaintiffs, expert witness on MACT, BACT for NOx, and enforceability in an administrative appeal of draft state air permit issued for four 300-MW pet-coke-fired CFBs. Reviewed produced documents and prepared prefiled testimony. Deposed 10/8/09 and 11/9/09. Testified 11/10/09. *Application of Las Brisas Energy Center, LLC for State Air Quality Permit*; before the State Office of Administrative Hearings, Texas. Permit remanded 3/29/10 as LBEC failed to meet burden of proof on a number of issues including MACT.

Texas Court of Appeals dismissed an appeal to reinstate the permit. The Texas Commission on Environmental Quality and Las Brisas Energy Center, LLC sought to overturn the Court of Appeals decision but moved to have their appeal dismissed in August 2013.

- For defense, expert witness in unlawful detainer case involving a gasoline station, minimart, and residential property with contamination from leaking underground storage tanks. Reviewed agency files and inspected site. Presented expert testimony on July 6, 2009, on causes of, nature and extent of subsurface contamination. *A. Singh v. S. Assaedi,* in Contra Costa County Superior Court, CA. Settled August 2009.
- For plaintiffs, expert witness on netting and enforceability for refinery being upgraded to process tar sands crude. Reviewed produced documents. Prepared expert and rebuttal reports addressing use of emission factors for baseline, omitted sources including coker, flares, tank landings and cleaning, and enforceability. Deposed. *In the Matter of Objection to the Issuance of Significant Source Modification Permit No. 089-25484-00453 to BP Products North America Inc., Whiting Business Unit, Save the Dunes Council, Inc., Sierra Club., Inc., Hoosier Environmental Council et al., Petitioners, B. P. Products North American, Respondents/Permittee,* before the Indiana Office of Environmental Adjudication. Case settled.
- For plaintiffs, expert witness on BACT, MACT, and enforceability in appeal of Title V permit issued to 600 MW coal-fired power plant burning Powder River Basin coal. Prepared technical comments on draft air permit. Reviewed record on appeal, drafted BACT, MACT, and enforceability pre-filed testimony. Drafted MACT and enforceability pre-filed rebuttal testimony. Deposed March 24, 2009. Testified June 10, 2009. *In Re: Southwestern Electric Power Company*, Arkansas Pollution Control and Ecology Commission, Consolidated Docket No. 08-006-P. Recommended Decision issued December 9, 2009 upholding issued permit. Commission adopted Recommended Decision January 22, 2010.
- For plaintiffs, expert witness in remedy phase of civil action relating to alleged violations of the Clean Air Act, Prevention of Significant Deterioration, for historic modifications (1989-1992) at Wabash Units 2, 3 and 5. Reviewed produced documents, prepared expert and rebuttal report on historic and current-day BACT for NOx and SO2, control costs, and excess emissions of NOx, SO2, and mercury. Deposed 10/21/08. *United States et al. v. Cinergy, et al.*, In U.S. District Court for the Southern District of Indiana, Indianapolis Division, Civil Action No. IP99-1693 C-M/S. Testified 2/3/09. Memorandum Opinion & Order 5-29-09 requiring shutdown of Wabash River Units 2, 3, 5 by September 30, 2009, run at baseline until shutdown, and permanently surrender SO2 emission allowances.
- For plaintiffs, expert witness in liability phase of civil action relating to alleged violations of the Clean Air Act, Prevention of Significant Deterioration, for three historic modifications (1997-2001) at two portland cement plants involving three cement kilns. Reviewed produced documents, analyzed CEMS data covering subject period, prepared netting analysis for NOx, SO_2 and CO, and prepared expert and rebuttal reports. *United States v. Cemex California*

Cement, In U.S. District Court for the Central District of California, Eastern Division, Case No. ED CV 07-00223-GW (JCRx). Settled 1/15/09.

- For intervenors Clean Wisconsin and Citizens Utility Board, prepared data requests, reviewed discovery and expert report. Prepared prefiled direct, rebuttal and surrebuttal testimony on cost to extend life of existing Oak Creek Units 5-8 and cost to address future regulatory requirements to determine whether to control or shutdown one or more of the units. Oral testimony 2/5/08. Application for a Certificate of Authority to Install Wet Flue Gas Desulfurization and Selective Catalytic Reduction Facilities and Associated Equipment for Control of Sulfur Dioxide and Nitrogen Oxide Emissions at Oak Creek Power Plant Units 5, 6, 7 and 8, WPSC Docket No. 6630-CE-299.
- For plaintiffs, expert witness on alternatives analysis and BACT for NOx, SO2, total PM10, and sulfuric acid mist in appeal of PSD permit issued to 1200 MW coal fired power plant burning Powder River Basin and/or Central Appalachian coal (Longleaf). Assisted in drafting technical comments on NOx on draft permit. Prepared expert disclosure. Presented 8+ days of direct and rebuttal expert testimony. Attended all 21 days of evidentiary hearing from 9/5/07 – 10/30/07 assisting in all aspects of hearing. *Friends of the Chatahooche and Sierra Club v. Dr. Carol Couch, Director, Environmental Protection Division of Natural Resources Department, Respondent, and Longleaf Energy Associates, Intervener*. ALJ Final Decision 1/11/08 denying petition. ALJ Order vacated & remanded for further proceedings, Fulton County Superior Court, 6/30/08. Court of Appeals of GA remanded the case with directions that the ALJ's final decision be vacated to consider the evidence under the correct standard of review, July 9, 2009. The ALJ issued an opinion April 2, 2010 in favor of the applicant. Final permit issued April 2010.
- For plaintiffs, expert witness on diesel exhaust in inverse condemnation case in which Port expanded maritime operations into residential neighborhoods, subjecting plaintiffs to noise, light, and diesel fumes. Measured real-time diesel particulate concentrations from marine vessels and tug boats on plaintiffs' property. Reviewed documents, depositions, DVDs, and photographs provided by counsel. Deposed. Testified October 24, 2006. *Ann Chargin, Richard Hackett, Carolyn Hackett, et al. v. Stockton Port District*, Superior Court of California, County of San Joaquin, Stockton Branch, No. CV021015. Judge ruled for plaintiffs.
- For plaintiffs, expert witness on NOx emissions and BACT in case alleging failure to obtain necessary permits and install controls on gas-fired combined-cycle turbines. Prepared and reviewed (applicant analyses) of NOx emissions, BACT analyses (water injection, SCR, ultra low NOx burners), and cost-effectiveness analyses based on site visit, plant operating records, stack tests, CEMS data, and turbine and catalyst vendor design information. Participated in negotiations to scope out consent order. *United States v. Nevada Power.* Case settled June 2007, resulting in installation of dry low NOx burners (5 ppm NOx averaged over 1 hr) on four units and a separate solar array at a local business.

- For plaintiffs, expert witness in appeal of PSD permit issued to 850 MW coal fired boiler burning Powder River Basin coal (Iatan Unit 2) on BACT for particulate matter, sulfuric acid mist and opacity and emission calculations for alleged historic violations of PSD. Assisted in drafting technical comments, petition for review, discovery requests, and responses to discovery requests. Reviewed produced documents. Prepared expert report on BACT for particulate matter. Assisted with expert depositions. Deposed February 7, 8, 27, and 28, 2007. *In Re PSD Construction Permit Issued to Great Plains Energy, Kansas City Power & Light – Iatan Generating Station, Sierra Club v. Missouri Department of Natural Resources, Great Plains Energy, and Kansas City Power & Light.* Case settled March 27, 2007, providing offsets for over 6 million ton/yr of CO2 and lower NOx and SO_2 emission limits.
- For plaintiffs, expert witness in remedy phase of civil action relating to alleged violations of the Clean Air Act, Prevention of Significant Deterioration, for historic modifications of coal-fired boilers and associated equipment. Reviewed produced documents, prepared expert report on cost to retrofit 24 coal-fired power plants with scrubbers designed to remove 99% of the sulfur dioxide from flue gases. Prepared supplemental and expert report on cost estimates and BACT for SO2 for these 24 complaint units. Deposed 1/30/07 and 3/14/07. *United States and State of New York et al. v. American Electric Power*, In U.S. District Court for the Southern District of Ohio, Eastern Division, Consolidated Civil Action Nos. C2-99-1182 and C2-99-1250. Settlement announced 10/9/07.
- For plaintiffs, expert witness on BACT, enforceability, and alternatives analysis in appeal of PSD permit issued for a 270-MW pulverized coal fired boiler burning Powder River Basin coal (City Utilities Springfield Unit 2). Reviewed permitting file and assisted counsel draft petition and prepare and respond to interrogatories and document requests. Reviewed interrogatory responses and produced documents. Assisted with expert depositions. Deposed August 2005. Evidentiary hearings October 2005. *In the Matter of Linda Chipperfield and Sierra Club v. Missouri Department of Natural Resources.* Missouri Supreme Court denied review of adverse lower court rulings August 2007.
- For plaintiffs, expert witness in civil action relating to plume touchdowns at AEP's Gavin coal-fired power plant. Assisted counsel draft interrogatories and document requests. Reviewed responses to interrogatories and produced documents. Prepared expert report "Releases of Sulfuric Acid Mist from the Gavin Power Station." The report evaluates sulfuric acid mist releases to determine if AEP complied with the requirements of CERCLA Section 103(a) and EPCRA Section 304. This report also discusses the formation, chemistry, release characteristics, and abatement of sulfuric acid mist in support of the claim that these releases present an imminent and substantial endangerment to public health under Section 7002(a)(1)(B) of the Resource Conservation and Recovery Act ("RCRA"). *Citizens Against Pollution v. Ohio Power Company*, In the U.S. District Court for the Southern District of Ohio, Eastern Division, Civil Action No. 2-04-cv-371. Case settled 12-8-06.

- For petitioners, expert witness in contested case hearing on BACT, enforceability, and emission estimates for an air permit issued to a 500-MW supercritical Power River Basin coal-fired boiler (Weston Unit 4). Assisted counsel prepare comments on draft air permit and respond to and draft discovery. Reviewed produced file, deposed (7/05), and prepared expert report on BACT and enforceability. Evidentiary hearings September 2005. *In the Matter of an Air Pollution Control Construction Permit Issued to Wisconsin Public Service Corporation for the Construction and Operation of a 500 MW Pulverized Coal-fired Power Plant Known as Weston Unit 4 in Marathon County, Wisconsin*, Case No. IH-04-21. The Final Order, issued 2/10/06, lowered the NOx BACT limit from 0.07 lb/MMBtu to 0.06 lb/MMBtu based on a 30-day average, added a BACT SO2 control efficiency, and required a 0.0005% high efficiency drift eliminator as BACT for the cooling tower. The modified permit, including these provisions, was issued 3/28/07. Additional appeals in progress.
- For plaintiffs, adviser on technical issues related to Citizen Suit against U.S. EPA regarding failure to update New Source Performance Standards for petroleum refineries, 40 CFR 60, Subparts J, VV, and GGG. *Our Children's Earth Foundation and Sierra Club v. U.S. EPA et al.* Case settled July 2005. CD No. C 05-00094 CW, U.S. District Court, Northern District of California – Oakland Division. Proposed revisions to standards of performance for petroleum refineries published 72 FR 27178 (5/14/07).
- For interveners, reviewed proposed Consent Decree settling Clean Air Act violations due to historic modifications of boilers and associated equipment at two coal-fired power plants. In response to stay order, reviewed the record, selected one representative activity at each of seven generating units, and analyzed to identify CAA violations. Identified NSPS and NSR violations for NOx, SO_2, PM/PM10, and sulfuric acid mist. Summarized results in an expert report. *United States of America, and Michael A. Cox, Attorney General of the State of Michigan, ex rel. Michigan Department of Environmental Quality, Plaintiffs, and Clean Wisconsin, Sierra Club, and Citizens' Utility Board, Intervenors, v. Wisconsin Electric Power Company, Defendant*, U.S. District Court for the Eastern District of Wisconsin, Civil Action No. 2:03-CV-00371-CNC. Order issued 10-1-07 denying petition.
- For a coalition of Nevada labor organizations (ACE), reviewed preliminary determination to issue a Class I Air Quality Operating Permit to Construct and supporting files for a 250-MW pulverized coal-fired boiler (Newmont). Prepared about 100 pages of technical analyses and comments on BACT, MACT, emission calculations, and enforceability. Assisted counsel draft petition and reply brief appealing PSD permit to U.S. EPA Environmental Appeals Board (EAB). Order denying review issued 12/21/05. *In re Newmont Nevada Energy Investment, LLC, TS Power Plant*, PSD Appeal No. 05-04 (EAB 2005).
- For petitioners and plaintiffs, reviewed and prepared comments on air quality and hazardous waste based on negative declaration for refinery ultra low sulfur diesel project located in SCAQMD. Reviewed responses to comments and prepared responses. Prepared declaration and presented oral testimony before SCAQMD Hearing Board on exempt sources (cooling towers) and calculation of potential to emit under NSR. Petition for writ of mandate filed

March 2005. Case remanded by Court of Appeals to trial court to direct SCAQMD to re-evaluate the potential environmental significance of NOx emissions resulting from the project in accordance with court's opinion. California Court of Appeals, Second Appellate Division, on December 18, 2007, affirmed in part (as to baseline) and denied in part. *Communities for a Better Environment v. South Coast Air Quality Management District and ConocoPhillips and Carlos Valdez et al v. South Coast Air Quality Management District and ConocoPhillips.* Certified for partial publication 1/16/08. Appellate Court opinion upheld by CA Supreme Court 3/15/10. *(2010) 48 Cal.4th 310*.

- For amici seeking to amend a proposed Consent Decree to settle alleged NSR violations at Chevron refineries, reviewed proposed settlement, related files, subject modifications, and emission calculations. Prepared declaration on emission reductions, identification of NSR and NSPS violations, and BACT/LAER for FCCUs, heaters and boilers, flares, and sulfur recovery plants. *U.S. et al. v. Chevron U.S.A.*, Northern District of California, Case No. C 03-04650. Memorandum and Order Entering Consent Decree issued June 2005. Case No. C 03-4650 CRB.
- For petitioners, prepared declaration on enforceability of periodic monitoring requirements, in response to EPA's revised interpretation of 40 CFR 70.6(c)(1). This revision limited additional monitoring required in Title V permits. 69 FR 3203 (Jan. 22, 2004). *Environmental Integrity Project et al. v. EPA* (U.S. Court of Appeals for the District of Columbia). Court ruled the Act requires all Title V permits to contain monitoring requirements to assure compliance. *Sierra Club v. EPA*, 536 F.3d 673 (D.C. Cir. 2008).
- For interveners in application for authority to construct a 500 MW supercritical coal-fired generating unit before the Wisconsin Public Service Commission, prepared pre-filed written direct and rebuttal testimony with oral cross examination and rebuttal on BACT and MACT (Weston 4). Prepared written comments on BACT, MACT, and enforceability on draft air permit for same facility.
- For property owners in Nevada, evaluated the environmental impacts of a 1,450-MW coal-fired power plant proposed in a rural area adjacent to the Black Rock Desert and Granite Range, including emission calculations, air quality modeling, comments on proposed use permit to collect preconstruction monitoring data, and coordination with agencies and other interested parties. Project cancelled.
- For environmental organizations, reviewed draft PSD permit for a 600-MW coal-fired power plant in West Virginia (Longview). Prepared comments on permit enforceability; coal washing; BACT for SO_2 and PM10; Hg MACT; and MACT for HCl, HF, non-Hg metallic HAPs, and enforceability. Assist plaintiffs draft petition appealing air permit. Retained as expert to develop testimony on MACT, BACT, offsets, enforceability. Participate in settlement discussions. Case settled July 2004.
- For petitioners, reviewed record produced in discovery and prepared affidavit on emissions of carbon monoxide and volatile organic compounds during startup of GE 7FA combustion

turbines to successfully establish plaintiff standing. *Sierra Club et al. v. Georgia Power Company* (Northern District of Georgia).

- For building trades, reviewed air quality permitting action for 1500-MW coal-fired power plant before the Kentucky Department for Environmental Protection (Thoroughbred).
- For petitioners, expert witness in administrative appeal of the PSD/Title V permit issued to a 1500-MW coal-fired power plant. Reviewed over 60,000 pages of produced documents, prepared discovery index, identified and assembled plaintiff exhibits. Deposed. Assisted counsel in drafting discovery requests, with over 30 depositions, witness cross examination, and brief drafting. Presented over 20 days of direct testimony, rebuttal and sur-rebuttal, with cross examination on BACT for NOx, SO_2, and PM/PM10; MACT for Hg and non-Hg metallic HAPs; emission estimates for purposes of Class I and II air modeling; risk assessment; and enforceability of permit limits. Evidentiary hearings from November 2003 to June 2004. *Sierra Club et al. v. Natural Resources & Environmental Protection Cabinet, Division of Air Quality and Thoroughbred Generating Company et al.* Hearing Officer Decision issued August 9, 2005 finding in favor of plaintiffs on counts as to risk, BACT (IGCC/CFB, NOx, SO_2, Hg, Be), single source, enforceability, and errors and omissions. Assist counsel draft exceptions. Cabinet Secretary issued Order April 11, 2006 denying Hearing Offer's report, except as to NOx BACT, Hg, 99% SO2 control and certain errors and omissions.
- For citizens group in Massachusetts, reviewed, commented on, and participated in permitting of pollution control retrofits of coal-fired power plant (Salem Harbor).
- Assisted citizens group and labor union challenge issuance of conditional use permit for a 317,000 ft^2 discount store in Honolulu without any environmental review. In support of a motion for preliminary injunction, prepared 7-page declaration addressing public health impacts of diesel exhaust from vehicles serving the Project. In preparation for trial, prepared 20-page preliminary expert report summarizing results of diesel exhaust and noise measurements at two big box retail stores in Honolulu, estimated diesel PM10 concentrations for Project using ISCST, prepared a cancer health risk assessment based on these analyses, and evaluated noise impacts.
- Assisted environmental organizations to challenge the DOE Finding of No Significant Impact (FONSI) for the Baja California Power and Sempra Energy Resources Cross-Border Transmissions Lines in the U.S. and four associated power plants located in Mexico (DOE EA-1391). Prepared 20-page declaration in support of motion for summary judgment addressing emissions, including CO_2 and NH_3, offsets, BACT, cumulative air quality impacts, alternative cooling systems, and water use and water quality impacts. Plaintiff's motion for summary judgment granted in part. U.S. District Court, Southern District decision concluded that the Environmental Assessment and FONSI violated NEPA and the APA due to their inadequate analysis of the potential controversy surrounding the project, water impacts, impacts from NH_3 and CO_2, alternatives, and cumulative impacts. *Border Power Plant Working Group v. Department of Energy and Bureau of Land Management*, Case No. 02-CV-513-lEG (POR) (May 2, 2003).

- For Sacramento school, reviewed draft air permit issued for diesel generator located across from playfield. Prepared comments on emission estimates, enforceability, BACT, and health impacts of diesel exhaust. Case settled. BUG trap installed on the diesel generator.
- Assisted unions in appeal of Title V permit issued by BAAQMD to carbon plant that manufactured coke. Reviewed District files, identified historic modifications that should have triggered PSD review, and prepared technical comments on Title V permit. Reviewed responses to comments and assisted counsel draft appeal to BAAQMD hearing board, opening brief, motion to strike, and rebuttal brief. Case settled.
- Assisted California Central Coast city obtain controls on a proposed new city that would straddle the Ventura-Los Angeles County boundary. Reviewed several environmental impact reports, prepared an air quality analysis, a diesel exhaust health risk assessment, and detailed review comments. Governor intervened and State dedicated the land for conservation purposes April 2004.
- Assisted Central California city to obtain controls on large alluvial sand quarry and asphalt plant proposing a modernization. Prepared comments on Negative Declaration on air quality, public health, noise, and traffic. Evaluated process flow diagrams and engineering reports to determine whether proposed changes increased plant capacity or substantially modified plant operations. Prepared comments on application for categorical exemption from CEQA. Presented testimony to County Board of Supervisors. Developed controls to mitigate impacts. Assisted counsel draft Petition for Writ. Case settled June 2002. Substantial improvements in plant operations were obtained including cap on throughput, dust control measures, asphalt plant loadout enclosure, and restrictions on truck routes.
- Assisted oil companies on the California Central Coast in defending class action citizen's lawsuit alleging health effects due to emissions from gas processing plant and leaking underground storage tanks. Reviewed regulatory and other files and advised counsel on merits of case. Case settled November 2001.
- Assisted oil company on the California Central Coast in defending property damage claims arising out of a historic oil spill. Reviewed site investigation reports, pump tests, leachability studies, and health risk assessments, participated in design of additional site characterization studies to assess health impacts, and advised counsel on merits of case. Prepare health risk assessment.
- Assisted unions in appeal of Initial Study/Negative Declaration ("IS/ND") for an MTBE phaseout project at a Bay Area refinery. Reviewed IS/ND and supporting agency permitting files and prepared technical comments on air quality, groundwater, and public health impacts. Reviewed responses to comments and final IS/ND and ATC permits and assisted counsel to draft petitions and briefs appealing decision to Air District Hearing Board. Presented sworn direct and rebuttal testimony with cross examination on groundwater impacts of ethanol spills on hydrocarbon contamination at refinery. Hearing Board ruled 5 to 0 in favor of appellants, remanding ATC to district to prepare an EIR.

- Assisted Florida cities in challenging the use of diesel and proposed BACT determinations in prevention of significant deterioration (PSD) permits issued to two 510-MW simple cycle peaking electric generating facilities and one 1,080-MW simple cycle/combined cycle facility. Reviewed permit applications, draft permits, and FDEP engineering evaluations, assisted counsel in drafting petitions and responding to discovery. Participated in settlement discussions. Cases settled or applications withdrawn.
- Assisted large California city in federal lawsuit alleging peaker power plant was violating its federal permit. Reviewed permit file and applicant's engineering and cost feasibility study to reduce emissions through retrofit controls. Advised counsel on feasible and cost-effective NOx, SOx, and PM10 controls for several 1960s diesel-fired Pratt and Whitney peaker turbines. Case settled.
- Assisted coalition of Georgia environmental groups in evaluating BACT determinations and permit conditions in PSD permits issued to several large natural gas-fired simple cycle and combined-cycle power plants. Prepared technical comments on draft PSD permits on BACT, enforceability of limits, and toxic emissions. Reviewed responses to comments, advised counsel on merits of cases, participated in settlement discussions, presented oral and written testimony in adjudicatory hearings, and provided technical assistance as required. Cases settled or won at trial.
- Assisted construction unions in review of air quality permitting actions before the Indiana Department of Environmental Management ("IDEM") for several natural gas-fired simple cycle peaker and combined cycle power plants.
- Assisted coalition of towns and environmental groups in challenging air permits issued to 523 MW dual fuel (natural gas and distillate) combined-cycle power plant in Connecticut. Prepared technical comments on draft permits and 60 pages of written testimony addressing emission estimates, startup/shutdown issues, BACT/LAER analyses, and toxic air emissions. Presented testimony in adjudicatory administrative hearings before the Connecticut Department of Environmental Protection in June 2001 and December 2001.
- Assisted various coalitions of unions, citizens groups, cities, public agencies, and developers in licensing and permitting of over 110 coal, gas, oil, biomass, and pet coke-fired power plants generating over 75,000 MW of electricity. These included base-load, combined cycle, simple cycle, and peaker power plants in Alaska, Arizona, Arkansas, California, Colorado, Georgia, Florida, Illinois, Indiana, Kentucky, Michigan, Missouri, Ohio, Oklahoma, Oregon, Texas, West Virginia, Wisconsin, and elsewhere. Prepared analyses of and comments on applications for certification, preliminary and final staff assessments, and various air, water, wastewater, and solid waste permits issued by local agencies. Presented written and oral testimony before various administrative bodies on hazards of ammonia use and transportation, health effects of air emissions, contaminated property issues, BACT/LAER issues related to SCR and SCONOx, criteria and toxic pollutant emission estimates, MACT analyses, air quality modeling, water supply and water quality issues, and methods to reduce

water use, including dry cooling, parallel dry-wet cooling, hybrid cooling, and zero liquid discharge systems.

- Assisted unions, cities, and neighborhood associations in challenging an EIR issued for the proposed expansion of the Oakland Airport. Reviewed two draft EIRs and prepared a health risk assessment and extensive technical comments on air quality and public health impacts. The California Court of Appeals, First Appellate District, ruled in favor of appellants and plaintiffs, concluding that the EIR "2) erred in using outdated information in assessing the emission of toxic air contaminants (TACs) from jet aircraft; 3) failed to support its decision not to evaluate the health risks associated with the emission of TACs with meaningful analysis," thus accepting my technical arguments and requiring the Port to prepare a new EIR. See *Berkeley Keep Jets Over the Bay Committee, City of San Leandro, and City of Alameda et al. v. Board of Port Commissioners* (August 30, 2001) 111 Cal.Rptr.2d 598.
- Assisted lessor of former gas station with leaking underground storage tanks and TCE contamination from adjacent property. Lessor held option to purchase, which was forfeited based on misrepresentation by remediation contractor as to nature and extent of contamination. Remediation contractor purchased property. Reviewed regulatory agency files and advised counsel on merits of case. Case not filed.
- Advised counsel on merits of several pending actions, including a Proposition 65 case involving groundwater contamination at an explosives manufacturing firm and two former gas stations with leaking underground storage tanks.
- Assisted defendant foundry in Oakland in a lawsuit brought by neighbors alleging property contamination, nuisance, trespass, smoke, and health effects from foundry operation. Inspected and sampled plaintiff's property. Advised counsel on merits of case. Case settled.
- Assisted business owner facing eminent domain eviction. Prepared technical comments on a negative declaration for soil contamination and public health risks from air emissions from a proposed redevelopment project in San Francisco in support of a CEQA lawsuit. Case settled.
- Assisted neighborhood association representing residents living downwind of a Berkeley asphalt plant in separate nuisance and CEQA lawsuits. Prepared technical comments on air quality, odor, and noise impacts, presented testimony at commission and council meetings, participated in community workshops, and participated in settlement discussions. Cases settled. Asphalt plant was upgraded to include air emission and noise controls, including vapor collection system at truck loading station, enclosures for noisy equipment, and improved housekeeping.
- Assisted a Fortune 500 residential home builder in claims alleging health effects from faulty installation of gas appliances. Conducted indoor air quality study, advised counsel on merits of case, and participated in discussions with plaintiffs. Case settled.

- Assisted property owners in Silicon Valley in lawsuit to recover remediation costs from insurer for large TCE plume originating from a manufacturing facility. Conducted investigations to demonstrate sudden and accidental release of TCE, including groundwater modeling, development of method to date spill, preparation of chemical inventory, investigation of historical waste disposal practices and standards, and on-site sewer and storm drainage inspections and sampling. Prepared declaration in opposition to motion for summary judgment. Case settled.
- Assisted residents in east Oakland downwind of a former battery plant in class action lawsuit alleging property contamination from lead emissions. Conducted historical research and dry deposition modeling that substantiated claim. Participated in mediation at JAMS. Case settled.
- Assisted property owners in West Oakland who purchased a former gas station that had leaking underground storage tanks and groundwater contamination. Reviewed agency files and advised counsel on merits of case. Prepared declaration in opposition to summary judgment. Prepared cost estimate to remediate site. Participated in settlement discussions. Case settled.
- Consultant to counsel representing plaintiffs in two Clean Water Act lawsuits involving selenium discharges into San Francisco Bay from refineries. Reviewed files and advised counsel on merits of case. Prepared interrogatory and discovery questions, assisted in deposing opposing experts, and reviewed and interpreted treatability and other technical studies. Judge ruled in favor of plaintiffs.
- Assisted oil company in a complaint filed by a resident of a small California beach community alleging that discharges of tank farm rinse water into the sanitary sewer system caused hydrogen sulfide gas to infiltrate residence, sending occupants to hospital. Inspected accident site, interviewed parties to the event, and reviewed extensive agency files related to incident. Used chemical analysis, field simulations, mass balance calculations, sewer hydraulic simulations with SWMM44, atmospheric dispersion modeling with SCREEN3, odor analyses, and risk assessment calculations to demonstrate that the incident was caused by a faulty drain trap and inadequate slope of sewer lateral on resident's property. Prepared a detailed technical report summarizing these studies. Case settled.
- Assisted large West Coast city in suit alleging that leaking underground storage tanks on city property had damaged the waterproofing on downgradient building, causing leaks in an underground parking structure. Reviewed subsurface hydrogeologic investigations and evaluated studies conducted by others documenting leakage from underground diesel and gasoline tanks. Inspected, tested, and evaluated waterproofing on subsurface parking structure. Waterproofing was substandard. Case settled.
- Assisted residents downwind of gravel mine and asphalt plant in Siskiyou County, California, in suit to obtain CEQA review of air permitting action. Prepared two declarations analyzing

air quality and public health impacts. Judge ruled in favor of plaintiffs, closing mine and asphalt plant.

- Assisted defendant oil company on the California Central Coast in class action lawsuit alleging property damage and health effects from subsurface petroleum contamination. Reviewed documents, prepared risk calculations, and advised counsel on merits of case. Participated in settlement discussions. Case settled.
- Assisted defendant oil company in class action lawsuit alleging health impacts from remediation of petroleum contaminated site on California Central Coast. Reviewed documents, designed and conducted monitoring program, and participated in settlement discussions. Case settled.
- Consultant to attorneys representing irrigation districts and municipal water districts to evaluate a potential challenge of USFWS actions under CVPIA section 3406(b)(2). Reviewed agency files and collected and analyzed hydrology, water quality, and fishery data. Advised counsel on merits of case. Case not filed.
- Assisted residents downwind of a Carson refinery in class action lawsuit involving soil and groundwater contamination, nuisance, property damage, and health effects from air emissions. Reviewed files and provided advice on contaminated soil and groundwater, toxic emissions, and health risks. Prepared declaration on refinery fugitive emissions. Prepared deposition questions and reviewed deposition transcripts on air quality, soil contamination, odors, and health impacts. Case settled.
- Assisted residents downwind of a Contra Costa refinery who were affected by an accidental release of naphtha. Characterized spilled naphtha, estimated emissions, and modeled ambient concentrations of hydrocarbons and sulfur compounds. Deposed. Presented testimony in binding arbitration at JAMS. Judge found in favor of plaintiffs.
- Assisted residents downwind of Contra Costa County refinery in class action lawsuit alleging property damage, nuisance, and health effects from several large accidents as well as routine operations. Reviewed files and prepared analyses of environmental impacts. Prepared declarations, deposed, and presented testimony before jury in one trial and judge in second. Case settled.
- Assisted business owner claiming damages from dust, noise, and vibration during a sewer construction project in San Francisco. Reviewed agency files and PM10 monitoring data and advised counsel on merits of case. Case settled.
- Assisted residents downwind of Contra Costa County refinery in class action lawsuit alleging property damage, nuisance, and health effects. Prepared declaration in opposition to summary judgment, deposed, and presented expert testimony on accidental releases, odor, and nuisance before jury. Case thrown out by judge, but reversed on appeal and not retried.

- Presented testimony in small claims court on behalf of residents claiming health effects from hydrogen sulfide from flaring emissions triggered by a power outage at a Contra Costa County refinery. Analyzed meteorological and air quality data and evaluated potential health risks of exposure to low concentrations of hydrogen sulfide. Judge awarded damages to plaintiffs.
- Assisted construction unions in challenging PSD permit for an Indiana steel mill. Prepared technical comments on draft PSD permit, drafted 70-page appeal of agency permit action to the Environmental Appeals Board challenging permit based on faulty BACT analysis for electric arc furnace and reheat furnace and faulty permit conditions, among others, and drafted briefs responding to four parties. EPA Region V and the EPA General Counsel intervened as amici, supporting petitioners. EAB ruled in favor of petitioners, remanding permit to IDEM on three key issues, including BACT for the reheat furnace and lead emissions from the EAF. Drafted motion to reconsider three issues. Prepared 69 pages of technical comments on revised draft PSD permit. Drafted second EAB appeal addressing lead emissions from the EAF and BACT for reheat furnace based on European experience with SCR/SNCR. Case settled. Permit was substantially improved. See *In re: Steel Dynamics, Inc.*, PSD Appeal Nos. 99-4 & 99-5 (EAB June 22, 2000).
- Assisted defendant urea manufacturer in Alaska in negotiations with USEPA to seek relief from penalties for alleged violations of the Clean Air Act. Reviewed and evaluated regulatory files and monitoring data, prepared technical analysis demonstrating that permit limits were not violated, and participated in negotiations with EPA to dismiss action. Fines were substantially reduced and case closed.
- Assisted construction unions in challenging PSD permitting action for an Indiana grain mill. Prepared technical comments on draft PSD permit and assisted counsel draft appeal of agency permit action to the Environmental Appeals Board challenging permit based on faulty BACT analyses for heaters and boilers and faulty permit conditions, among others. Case settled.
- As part of a consent decree settling a CEQA lawsuit, assisted neighbors of a large west coast port in negotiations with port authority to secure mitigation for air quality impacts. Prepared technical comments on mobile source air quality impacts and mitigation and negotiated a $9 million CEQA mitigation package. Represented neighbors on technical advisory committee established by port to implement the air quality mitigation program. Program successfully implemented.
- Assisted construction unions in challenging permitting action for a California hazardous waste incinerator. Prepared technical comments on draft permit, assisted counsel prepare appeal of EPA permit to the Environmental Appeals Board. Participated in settlement discussions on technical issues with applicant and EPA Region 9. Case settled.

- Assisted environmental group in challenging DTSC Negative Declaration on a hazardous waste treatment facility. Prepared technical comments on risk of upset, water, and health risks. Writ of mandamus issued.
- Assisted several neighborhood associations and cities impacted by quarries, asphalt plants, and cement plants in Alameda, Shasta, Sonoma, and Mendocino counties in obtaining mitigations for dust, air quality, public health, traffic, and noise impacts from facility operations and proposed expansions.
- For over 100 industrial facilities, commercial/campus, and redevelopment projects, developed the record in preparation for CEQA and NEPA lawsuits. Prepared technical comments on hazardous materials, solid wastes, public utilities, noise, worker safety, air quality, public health, water resources, water quality, traffic, and risk of upset sections of EIRs, EISs, FONSIs, initial studies, and negative declarations. Assisted counsel in drafting petitions and briefs and prepared declarations.
- For several large commercial development projects and airports, assisted applicant and counsel prepare defensible CEQA documents, respond to comments, and identify and evaluate "all feasible" mitigation to avoid CEQA challenges. This work included developing mitigation programs to reduce traffic-related air quality impacts based on energy conservation programs, solar, low-emission vehicles, alternative fuels, exhaust treatments, and transportation management associations.

SITE INVESTIGATION/REMEDIATION/CLOSURE

- Technical manager and principal engineer for characterization, remediation, and closure of waste management units at former Colorado oil shale plant. Constituents of concern included BTEX, As, 1,1,1-TCA, and TPH. Completed groundwater monitoring programs, site assessments, work plans, and closure plans for seven process water holding ponds, a refinery sewer system, and processed shale disposal area. Managed design and construction of groundwater treatment system and removal actions and obtained clean closure.
- Principal engineer for characterization, remediation, and closure of process water ponds at a former lanthanide processing plant in Colorado. Designed and implemented groundwater monitoring program and site assessments and prepared closure plan.
- Advised the city of Sacramento on redevelopment of two former railyards. Reviewed work plans, site investigations, risk assessment, RAPS, RI/FSs, and CEQA documents. Participated in the development of mitigation strategies to protect construction and utility workers and the public during remediation, redevelopment, and use of the site, including buffer zones, subslab venting, rail berm containment structure, and an environmental oversight plan.

- Provided technical support for the investigation of a former sanitary landfill that was redeveloped as single family homes. Reviewed and/or prepared portions of numerous documents, including health risk assessments, preliminary endangerment assessments, site investigation reports, work plans, and RI/FSs. Historical research to identify historic waste disposal practices to prepare a preliminary endangerment assessment. Acquired, reviewed, and analyzed the files of 18 federal, state, and local agencies, three sets of construction field notes, analyzed 21 aerial photographs and interviewed 14 individuals associated with operation of former landfill. Assisted counsel in defending lawsuit brought by residents alleging health impacts and diminution of property value due to residual contamination. Prepared summary reports.
- Technical oversight of characterization and remediation of a nitrate plume at an explosives manufacturing facility in Lincoln, CA. Provided interface between owners and consultants. Reviewed site assessments, work plans, closure plans, and RI/FSs.
- Consultant to owner of large western molybdenum mine proposed for NPL listing. Participated in negotiations to scope out consent order and develop scope of work. Participated in studies to determine premining groundwater background to evaluate applicability of water quality standards. Served on technical committees to develop alternatives to mitigate impacts and close the facility, including resloping and grading, various thickness and types of covers, and reclamation. This work included developing and evaluating methods to control surface runoff and erosion, mitigate impacts of acid rock drainage on surface and ground waters, and stabilize nine waste rock piles containing 328 million tons of pyrite-rich, mixed volcanic waste rock (andesites, rhyolite, tuff). Evaluated stability of waste rock piles. Represented client in hearings and meetings with state and federal oversight agencies.

REGULATORY (PARTIAL LIST)

- In January 2021, researched and wrote 99 pages of comments on the DEIR for the Estrella Substation and Paso Robles Area Reinforcement Project on: (a) construction impacts and mitigation; (b) construction public health risks (cancer, acute, ambient NOx); (c) Valley Fever; (d) battery energy storage system risk of upset impacts; (e) greenhouse gas emissions from BESS charging; and (f) transmission line impacts.
- In January 2021, researched and wrote 42 pages of responses to comments on IS and comment on MND for geothermal power plant on: (a) risk of isopentane upset impacts ; (b) tanker truck accidents; (c) Valley Fever impacts during construction; (d) air quality impacts of construction and operation; (e) water use impacts; and (f) cumulative impacts.
- In December 2020, researched and wrote 23 pages of comments on the Draft Supplemental Recirculated Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2020 A, Focused on Oil and Gas Local Permitting on: (a) significant and

unmitigated construction emissions; (b) significant and unmitigated operational emissions; (c) public health and biological impacts of criteria pollutants emissions and ozone; (d) offsets not valid mitigation.

- In June to August 2020, researched and wrote 69 pages of comments on inadequate project description, construction impacts, operational air quality impacts, cumulative air quality impacts, public health impacts, valley fever, hazards, geologic impacts, water use, CEC licensing, and extended lifetime impacts for the repower of a geothermal power plant in Imperial County.
- In June 2020, review revised quarry reclamation plan and draft 27 pages of comments on proposed modification.
- In June and July 2020, researched and wrote 23 pages of comments on cement terminal at Port of Stockton on construction impacts, emission baseline, operational emissions, and greenhouse gas mitigation.
- In May 2020, researched and wrote 10 pages of comments on FEIR for a new apartment project in Contra Costa County on GHG emissions from vegetation removal, mobile sources, and water use and mitigation for same.
- In March/April 2020, researched and wrote 50 pages of comments on IS/MND for battery energy storage project in San Jose (Hummingbird) on inadequate project description, criteria pollutant and GHG emissions, significant and unmitigated energy impacts, cumulative impacts, construction impacts, public health impacts from BESS accidents, and battery handling and transportation accidents. Wrote 15 pages of responses to comments on vendor specifications, battery composition, cumulative impacts, construction impacts, fire control methods, and battery accidents.
- In April 2020, researched and wrote 47 pages of comments on IS/MND for data center in Santa Clara (SV1) on operational NOx emissions; out-of-district emissions; interbasin pollutant transport; omitted emission sources; GHG compliance with plans, policies and regulations; indirect GHG emissions; air quality impacts; construction emissions; cumulative impacts; and risk of upset from battery accidents.
- In March 2020, researched and wrote 30 pages of comments on IS/MND for data center in San Jose (Hummingbird) on operational GHG and criteria pollutant emissions, cumulative impacts, and public health risks. Research and write responses to comments.
- In February-March 2020, researched and wrote 30 pages on an IS/MND for a data center in San Jose (Stack) on operational NOx and GHG emissions, cumulative impacts, heath risks, and odor.
- In February 2020, researched and wrote 33 pages of comments on Initial Study for a battery storage facility in Ventura County (Orni) on criteria pollutant and GHG emissions, worker

and public health impacts, cumulative impacts, valley fever, and consistency with general plan.

- In February 2020, researched and wrote 20 pages of comments on valley fever in response to applicant's global response to comments on Valley Fever for a wind project in San Diego County.
- In January 2020, researched and wrote 32 pages of comments on the Orni battery storage facility (BESS) on incomplete project description, cumulative GHG and NOx impacts, BESS accidents, and health impacts, including soil contamination and valley fever.
- In January 2020, research and wrote 41 pages of comments on the DEIR for the NuStar Port of Stockton Liquid Bulk Terminal on operational emission calculations, significant NOx emissions, significant GHG emissions. GHG mitigation, and cumulative impacts.
- In December 2019, researched and wrote 3 pages of comments on the Silverstrand Grid battery storage facility on greenhouse gas emissions.
- In December 2019, researched and wrote 15 pages of comments on the Initial Study for the K2 Pure – Chlorine Rail Transportation Curtailment Project, including on air quality baseline, project description, emissions, cancer risks, risk of upset.
- In November 2019, reviewed agency files and researched and wrote 42 pages of comments on the Belridge Solar Project on compliance with local zoning ordinances, water quality impacts, air quality impacts, and worker and public health impacts due to soil contamination and valley fever.
- In October 2019, researched and wrote 49 pages of comments on IS/MND for data center in Santa Clara, CA on operational criteria pollutants (mobile sources, off-site electricity generation, emergency generators), ambient air quality impacts, greenhouse gas emissions and mitigation, and cumulative impacts.
- In October 2019, researched and wrote 9 pages of comments on the Application, Statement of Basis and draft Permit to Construct and Temporary Permit to Operate for proposed changes at the Paramount Refinery to facilitate refining of biomass-based feedstock to produce renewable fuels.
- In September 2019, reviewed City of Sunnyvale's file on Google's proposed Central Utility Plant and researched and wrote 34 pages of comments on construction and operational air quality impacts, cumulative impacts, and battery fire and explosion impacts. In October 2019, researched and wrote 15 pages of responses to comments.
- In August 2019, research and wrote 37 pages of comments on the DSEIR for the Le Conte Battery Energy Storage System on GHG emissions, hazards and hazardous material impacts, and health impacts.

- In August 2019, researched and wrote 38 pages of comments on IS/MND for the Hanford-Lakeside Dairy digester Project, Kings County, on project description (piecemealing), cumulative impacts, construction impacts, air quality impacts, valley fever and risk of upset.
- In July 2019, researched and wrote 48 pages of comments on IS/MND for the Five Points Pipeline Dairy Digester Cluster Project, including on air quality, cumulative impacts, worker and public health impacts (including on pesticide-contaminated soils), Valley Fever, construction air quality impacts, and risk of upset.
- In June 2019, researched and wrote 15 pages of responses to comments on IS/MND for SV1 Data Center, including operational NOx emissions, air quality analyses, construction emissions, battery hazards, and mitigation plans for noise, vibration, risk management, storm water pollution, and emergency response and evacuation plans.
- In June 2019, researched and wrote 30 pages of comments on DEIR for the Humboldt Wind Energy Project on fire and aesthetic impacts of transmission line, construction air quality impacts and mitigation, and greenhouse gas emissions.
- In May 2019, researched and wrote 25 pages of comments on the DEIR for the ExxonMobil Interim Trucking for Santa Ynez Phased Restart Project on project description, baseline, and mitigation.
- In April 2019, researched and wrote a 16 page letter critiquing the adequacy of the FEIR for CalAm Desalination Project to support a Monterey County Combined Development Permit, consisting of a Use Permit, an Administrative Permit, and Design Approval for the Desalination Plant and Carmel Valley Pump Station.
- In April 2019, researched and wrote 22 pages of comments on DEIR for the Eco-Energy Liquid Bulk Terminal at the Port of Stockton on emissions, air quality impact mitigation, and health risk assessment.
- In March 2019, researched and wrote 43 pages of comments on DEIR for Contanda Renewable Diesel Bulk Liquid Terminal at the Port of Stockton on operational emissions, air quality impacts and mitigation and health risks.
- In February 2019, researched and wrote 36 pages of comments on general cumulative impacts, air quality, accidents, and valley fever for IS/MND for biogas cluster project in Kings County.
- In January 2019, researched and wrote 30 pages of comments on air quality and valley fever for IS/MND for energy storage facility in Kings County.
- In December 2018, researched and wrote 11 pages of comments on air quality for IS/MND for biomass gasification facility in Madera County.
- In December 2018, researched and wrote 10 pages of responses to comments on IS/MND for a wind energy project in Riverside County.

- In December 2018, researched and wrote 12 pages of responses to comments on IS/MND for a large Safeway fueling station in Petaluma. The Planning Commission voted unanimously to require an EIR.
- In November 2018, researched and wrote 30 pages of comments on IS/MND on wind energy project in Riverside County on construction health risks, odor impacts, waste disposal, transportation, construction emissions and mitigation and Valley Fever.
- In November 2018, researched and wrote 32 pages of comments on the DEIR for a solar energy generation and storage project in San Bernardino County on hazards, health risks, odor, construction emissions and mitigation, and Valley Fever.
- In September 2018, researched and wrote 36 pages of comments on the FEIR for the Newland Sierra Project including on greenhouse gas emissions, construction emissions, and cumulative impacts.
- In August 2018, researched and wrote 20 pages of comments on the health risk assessment in the IS/MND for a large Safeway fueling station in Petaluma.
- In August 2018, researched and wrote responses to comments on DEIR for the Newland Sierra Project, San Diego County on greenhouse gas emissions, construction emissions, odor, and Valley Fever.
- In July/August 2018, researched and wrote 12 pages of comments on DEIR for proposed Doheny Desal Project, on GHG, criteria pollutant, and TAC emissions and public health impacts during construction and indirect emissions during operation.
- In June 2018, researched and wrote 12 pages of technical comments rebutting NDDH responses to comments on Meridian Davis Refinery.
- In April 2018, researched and wrote 26 pages of comments on greenhouse gas emissions and mitigation as proposed in the San Diego County Climate Action Plan.
- In April 2018, researched and wrote 24 pages of comments on the FEIR for Monterey County water supply project, including GHG mitigation, air quality impacts and mitigation, and Valley Fever.
- In March-June 2018, researched and wrote 37 pages of comments on the IS/MND for the 2305 Mission College Boulevard Data Center, Santa Clara, California and responded to responses to comments.
- In March 2018, researched and wrote 40 pages of comments on the IS/MND for the Diablo Energy Storage Facility in Pittsburg, California.
- In March 2018, researched and wrote 19 pages of comments on Infill Checklist/Mitigated Negative Declaration for the Legacy@Livermore Project on CalEEMod emission calculations, including NOx and PM10 and construction health risk assessment, including Valley Fever.

- In January 2018, researched and wrote 28 pages of comments on draft Permit to Construct for the Davis Refinery Project, North Dakota, as a minor source of criteria pollutants and HAPs.
- In December 2017, researched and wrote 19 pages of comments on DEIR for the Rialto Bioenergy Facility, Rialto, California.
- In November and December 2017, researched and wrote 6 pages of comments on the Ventura County Air Pollution Control District's Preliminary Determination if Compliance (PDOC) for Mission Rock Energy Center.
- In November 2017, researched and wrote 11 pages of comments on control technology evaluation for the National Emission Standards for Hazardous Air Pollutants from the Portland Cement Manufacturing Industry Residual Risk and Technology Review.
- In September and November 2017, prepared comments on revised Negative Declaration for Delicato Winery in San Joaquin County, California.
- In October and November 2017, researched and wrote comments on North City Project Pure Water San Diego Program DEIR/DEIS to reclaim wastewater for municipal use.
- In August 2017, reviewed DEIR on a new residential community in eastern San Diego County (Newland Sierra) and research and wrote 60 pages of comments on air quality, greenhouse gas emissions and health impacts, including Valley Fever.
- In August 2017, reviewed responses to comments on Part 70 operating permit for IGP Methanol's Gulf Coast Methanol Complex, near Myrtle Grove, Louisiana, and researched and wrote comments on metallic HAP issues.
- In July 2017, reviewed the FEIS for an expansion of the Port of Gulfport and researched and wrote 10 pages of comments on air quality and public health.
- In June 2017, reviewed and prepared technical report on an Application for a synthetic minor source construction permit for a new Refinery in North Dakota.
- In June 2017, reviewed responses to NPCA and other comments on the BP Cherry Point Refinery modifications and assisted counsel in evaluating issues to appeal, including GHG BACT, coker heater SCR cost effectiveness analysis, and SO_2 BACT.
- In June 2017, reviewed Part 70 Operating Permit Renewal/Modification for the Noranda Alumina LC/Gramercy Holdings I, LLC alumina processing plant, St. James, Louisiana, and prepared comments on HAP emissions from bauxite feedstock.
- In May and June 2017, reviewed FEIR on Tesoro Integration Project and prepared responses to comments on the DEIR.
- In May 2017, prepared comments on tank VOC and HAP emissions from Tesoro Integration Project, based on real time monitoring at the Tesoro and other refineries in the SCAQMD.

- In April 2017, prepared comments on Negative Declaration for Delicato Winery in San Joaquin County, California.
- In March 2017, reviewed Negative Declaration for Ellmore geothermal facility in Imperial County, California and prepared summary of issues.
- In March 2017, prepared response to Phillips 66 Company's Appeal of the San Luis Obispo County Planning Commission's Decision Denying the Rail Spur Extension Project Proposed for the Santa Maria Refinery.
- In February 2017, researched and wrote comments on Kalama draft Title V permit for 10,000 MT/day methanol production and marine export facility in Kalama, Washington.
- In January 2017, researched and wrote 51 pages of comments on proposed Title V and PSD permits for the St. James Methanol Plant, St. James Louisiana, on BACT and enforceability of permit conditions.
- In December 2016, researched and wrote comments on draft Title V Permit for Yuhuang Chemical Inc. Methanol Plant, St. James, Louisiana, responding to EPA Order addressing enforceability issues.
- In November 2016, researched and wrote comments on Initial Study/Mitigated Negative Declaration for the AES Battery Energy Storage Facility, Long Beach, CA.
- In November 2016, researched and wrote comments on Campo Verde Battery Energy Storage System Draft Environmental Impact Report.
- In October 2016, researched and wrote comments on Title V Permit for NuStar Terminal Operations Partnership L.P, Stockton, CA.
- In October 2016, prepared expert report, Technical Assessment of Achieving the 40 CFR Part 423 Zero Discharge Standard for Bottom Ash Transport Water at the Belle River Power Plant, East China, Michigan. Reported resulted in a 2 year reduction in compliance date for elimination of bottom ash transport water. 1/30/17 DEQ Letter.
- In September 2016, researched and wrote comments on Proposed Title V Permit and Environmental Assessment Statement, Yuhuang Chemical Inc. Methanol Plant, St. James, Louisiana.
- In September 2016, researched and wrote response to "Further Rebuttal in Support of Appeal of Planning Commission Resolution No. 16-1, Denying Use Permit Application 12PLN-00063 and Declining to Certify Final Environmental Impact Report for the Valero Benicia Crude-by-Rail Project.
- In August 2016, reviewed and prepared comments on manuscript: Hutton et al., Freshwater Flows to the San Francisco Bay-Delta Estuary over Nine Decades: Trends Evaluation.

- In August/September 2016, researched and wrote comments on Mitigated Negative Declaration for the Chevron Long Wharf Maintenance and Efficiency Project.
- In July 2016, researched and wrote comments on the Ventura County APCD Preliminary Determination of Compliance and the California Energy Commission Revised Preliminary Staff Assessment for the Puente Power Project.
- In June 2016, researched and wrote comments on an Ordinance (1) Amending the Oakland Municipal Code to Prohibit the Storage and Handling of Coal and Coke at Bulk Material Facilities or Terminals Throughout the City of Oakland and (2) Adopting CEQA Exemption Findings and supporting technical reports. Council approved Ordinance on an 8 to 0 vote on June 27, 2016.
- In May 2016, researched and wrote comments on Draft Title V Permit and Draft Environmental Impact Report for the Tesoro Los Angeles Refinery Integration and Compliance Project.
- In March 2016, researched and wrote comments on Valero's Appeal of Planning Commission's Denial of Valero Crude-by-Rail Project.
- In February 2016, researched and wrote comments on Final Environmental Impact Report, Santa Maria Rail Spur Project.
- In February 2016, researched and wrote comments on Final Environmental Impact Report, Valero Benicia Crude by Rail Project.
- In January 2016, researched and wrote comments on Draft Programmatic Environmental Impact Report for the Southern California Association of Government's (SCAG) 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy.
- In November 2015, researched and wrote comments on Final Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015(C) (Focused on Oil and Gas Local Permitting), November 2015.
- In October 2015, researched and wrote comments on Revised Draft Environmental Report, Valero Benicia Crude by Rail Project.
- In September 2015, prepared report, "Environmental, Health and Safety Impacts of the Proposed Oakland Bulk and Oversized Terminal, and presented oral testimony on September 21, 2015 before Oakland City Council on behalf of the Sierra Club.
- In September 2015, researched and wrote comments on revisions to two chapters of EPA's Air Pollution Control Cost Manual: Docket ID No. EPA-HQ-OAR-2015-0341.
- In June 2015, researched and wrote comments on DEIR for the CalAm Monterey Peninsula Water Supply Project.

- In April 2015, researched and wrote comments on proposed Title V Operating Permit Revision and Prevention of Significant Deterioration Permit for Arizona Public Service's Ocotillo Power Plant Modernization Project (5 GE LMS100 105-MW simple cycle turbines operated as peakers), in Tempe, Arizona; Final permit appealed to EAB.
- In March 2015, researched and wrote "Comments on Proposed Title V Air Permit, Yuhuang Chemical Inc. Methanol Plant, St. James, Louisiana". Client filed petition objecting to the permit. EPA granted majority of issues. In the Matter of Yuhuang Chemical Inc. Methanol Plant, St. James Parish, Louisiana, Permit No. 2560-00295-V0, Issued by the Louisiana Department of Environmental Quality, Petition No. VI-2015-03, Order Responding to the Petitioners' Request for Objection to the Issuance of a Title V Operating Permit, September 1, 2016.
- In February 2015, prepared compilation of BACT cost effectiveness values in support of comments on draft PSD Permit for Bonanza Power Project.
- In January 2015, prepared cost effectiveness analysis for SCR for a 500-MW coal fire power plant, to address unpermitted upgrades in 2000.
- In January 2015, researched and wrote comments on Revised Final Environmental Impact Report for the Phillips 66 Propane Recovery Project. *Communities for a Better Environment et al. v. Contra Costa County et al. Contra Costa County (Superior Court, Contra Costa County, Case No. MSN15-0301, December 1, 2016).*
- In December 2014, researched and wrote "Report on Bakersfield Crude Terminal Permits to Operate." In response, the U.S. EPA cited the Terminal for 10 violations of the Clean Air Act. The Fifth Appellate District Court upheld the finding in this report in CBE et al v. San Joaquin Valley Unified Air Pollution Control District and Bakersfield Crude Terminal LLC et al, Super. Ct. No. 284013, June 23, 2017.
- In December 2014, researched and wrote comments on Revised Draft Environmental Impact Report for the Phillips 66 Propane Recovery Project.
- In November 2014, researched and wrote comments on Revised Draft Environmental Impact Report for Phillips 66 Rail Spur Extension Project and Crude Unloading Project, Santa Maria, CA to allow the import of tar sands crudes.
- In November 2014, researched and wrote comments on Draft Environmental Impact Report for Phillips 66 Ultra Low Sulfur Diesel Project, responding to the California Supreme Court Decision, *Communities for a Better Environment v. South Coast Air Quality Management Dist. (2010) 48 Cal.4th 310.*
- In November 2014, researched and wrote comments on Draft Environmental Impact Report for the Tesoro Avon Marine Oil Terminal Lease Consideration.

- In October 2014, prepared: "Report on Hydrogen Cyanide Emissions from Fluid Catalytic Cracking Units", pursuant to the Petroleum Refinery Sector Risk and Technology Review and New Source Performance Standards, 79 FR 36880.
- In October 2014, researched and wrote technical comments on Final Environmental Impact Reports for Alon Bakersfield Crude Flexibility Project to build a rail terminal to allow the import/export of tar sands and Bakken crude oils and to upgrade an existing refinery to allow it to process a wide range of crudes.
- In October 2014, researched and wrote technical comments on the Title V Permit Renewal and three De Minimus Significant Revisions for the Tesoro Logistics Marine Terminal in the SCAQMD.
- In September 2014, researched and wrote technical comments on the Draft Environmental Impact Report for the Valero Crude by Rail Project.
- In August 2014, for EPA Region 6, prepared technical report on costing methods for upgrades to existing scrubbers at coal-fired power plants.
- In July 2014, researched and wrote technical comments on Draft Final Environmental Impact Reports for Alon Bakersfield Crude Flexibility Project to build a rail terminal to allow the import/export of tar sands and Bakken crude oils and to upgrade an existing refinery to allow it to process a wide range of crudes.
- In June 2014, researched and wrote technical report on Initial Study and Draft Negative Declaration for the Tesoro Logistics Storage Tank Replacement and Modification Project.
- In May 2014, researched and wrote technical comments on Intent to Approve a new refinery and petroleum transloading operation in Utah.
- In March and April 2014, prepared declarations on air permits issued for two crude-by-rail terminals in California, modified to switch from importing ethanol to importing Bakken crude oils by rail and transferring to tanker cars. Permits were issued without undergoing CEQA review. One permit was upheld by the San Francisco Superior Court as statute of limitations had run. The Sacramento Air Quality Management District withdrew the second one due to failure to require BACT and conduct CEQA review.
- In March 2014, researched and wrote technical report on Negative Declaration for a proposed modification of the air permit for a bulk petroleum and storage terminal to the allow the import of tar sands and Bakken crude oil by rail and its export by barge, under the New York State Environmental Quality Review Act (SEQRA).
- In February 2014, researched and wrote technical report on proposed modification of air permit for midwest refinery upgrade/expansion to process tar sands crudes.
- In January 2014, prepared cost estimates to capture, transport, and use CO2 in enhanced oil recovery, from the Freeport LNG project based on both Selexol and Amine systems.

- In January 2014, researched and wrote technical report on Draft Environmental Impact Report for Phillips 66 Rail Spur Extension Project, Santa Maria, CA. Comments addressed project description (piecemealing, crude slate), risk of upset analyses, mitigation measures, alternative analyses and cumulative impacts.
- In November 2013, researched and wrote technical report on the Phillips 66 Propane Recovery Project, Rodeo, CA. Comments addressed project description (piecemealing, crude slate) and air quality impacts.
- In September 2013, researched and wrote technical report on the Draft Authority to Construct Permit for the Casa Diablo IV Geothermal Development Project Environmental Impact Report and Declaration in Support of Appeal and Petition for Stay, U.S. Department of the Interior, Board of Land Appeals, Appeal of Decision Record for the Casa Diablo IV Geothermal Development Project.
- In September 2013, researched and wrote technical report on Effluent Limitation Guidelines for Best Available Technology Economically Available (BAT) for Bottom Ash Transport Waters from Coal-Fired Power Plants in the Steam Electric Power Generating Point Source Category.
- In July 2013, researched and wrote technical report on Initial Study/Mitigated Negative Declaration for the Valero Crude by Rail Project, Benicia, California, Use Permit Application 12PLN-00063.
- In July 2013, researched and wrote technical report on fugitive particulate matter emissions from coal train staging at the proposed Coyote Island Terminal, Oregon, for draft Permit No. 25-0015-ST-01.
- In July 2013, researched and wrote technical comments on air quality impacts of the Finger Lakes LPG Storage Facility as reported in various Environmental Impact Statements.
- In July 2013, researched and wrote technical comments on proposed Greenhouse Gas PSD Permit for the Celanese Clear Lake Plant, including cost analysis of CO2 capture, transport, and sequestration.
- In June/July 2013, researched and wrote technical comments on proposed Draft PSD Preconstruction Permit for Greenhouse Gas Emission for the ExxonMobil Chemical Company Baytown Olefins Plant, including cost analysis of CO2 capture, transport, and sequestration.
- In June 2013, researched and wrote technical report on a Mitigated Negative Declaration for a new rail terminal at the Valero Benicia Refinery to import increased amounts of "North American" crudes. Comments addressed air quality impacts of refining increased amounts of tar sands crudes.

- In June 2013, researched and wrote technical report on Draft Environmental Impact Report for the California Ethanol and Power Imperial Valley 1 Project.
- In May 2013, researched and wrote comments on draft PSD permit for major expansion of midwest refinery to process 100% tar sands crudes, including a complex netting analysis involving debottlenecking, piecemealing, and BACT analyses.
- In April 2013, researched and wrote technical report on the Draft Supplemental Environmental Impact Statement (DSEIS) for the Keystone XL Pipeline on air quality impacts from refining increased amount of tar sands crudes at Refineries in PADD 3.
- In October 2012, researched and wrote technical report on the Environmental Review for the Coyote Island Terminal Dock at the Port of Morrow on fugitive particulate matter emissions.
- In October 2012-October 2014, review and evaluate Flint Hills West Application for an expansion/modification for increased (Texas, Eagle Ford Shale) crude processing and related modification, including netting and BACT analysis. Assist in settlement discussions.
- In February 2012, researched and wrote comments on BART analysis in PA Regional Haze SIP, 77 FR 3984 (Jan. 26, 2012). On Sept. 29, 2015, a federal appeals court overturned the U.S. EPA's approval of this plan, based in part on my comments, concluding "..we will vacate the 2014 Final Rule to the extent it approved Pennsylvania's source-specific BART analysis and remand to the EPA for further proceedings consistent with this Opinion." Nat'l Parks Conservation Assoc. v. EPA, 3d Cir., No. 14-3147, 9/19/15.
- Prepared cost analyses and comments on New York's proposed BART determinations for NOx, SO2, and PM and EPA's proposed approval of BART determinations for Danskammer Generating Station under New York Regional Haze State Implementation Plan and Federal Implementation Plan, 77 FR 51915 (August 28, 2012).
- Prepared cost analyses and comments on NOx BART determinations for Regional Haze State Implementation Plan for State of Nevada, 77 FR 23191 (April 18, 2012) and 77 FR 25660 (May 1, 2012).
- Prepared analyses of and comments on New Source Performance Standards for Greenhouse Gas Emissions for New Stationary Sources: Electric Utility Generating Units, 77 FR 22392 (April 13, 2012).
- Researched and wrote comments on CASPR-BART emission equivalency and NOx and PM BART determinations in EPA proposed approval of State Implementation Plan for Pennsylvania Regional Haze Implementation Plan, 77 FR 3984 (January 26, 2012).
- Researched and wrote comments and statistical analyses on hazardous air pollutants (HAPs) emission controls, monitoring, compliance methods, and the use of surrogates for acid gases, organic HAPs, and metallic HAPs for proposed National Emission Standards for Hazardous

Air Pollutants from Coal- and Oil-Fired Electric Utility Steam Generating Units, 76 FR 24976 (May 3, 2011).

- Prepared cost analyses and comments on NOx BART determinations and emission reductions for proposed Federal Implementation Plan for Four Corners Power Plant, 75 FR 64221 (October 19, 2010).
- Prepared cost analyses and comments on NOx BART determinations for Colstrip Units 1- 4 for Montana State Implementation Plan and Regional Haze Federal Implementation Plan, 77 FR 23988 (April 20, 2010).
- For EPA Region 8, prepared report: Revised BART Cost Effectiveness Analysis for Tail-End Selective Catalytic Reduction at the Basin Electric Power Cooperative Leland Olds Station Unit 2 Final Report, March 2011, in support of 76 FR 58570 (Sept. 21, 2011).
- For EPA Region 6, prepared report: Revised BART Cost-Effectiveness Analysis for Selective Catalytic Reduction at the Public Service Company of New Mexico San Juan Generating Station, November 2010, in support of 76 FR 52388 (Aug. 22, 2011).
- For EPA Region 6, prepared report: Revised BART Cost-Effectiveness Analysis for Flue Gas Desulfurization at Coal-Fired Electric Generating Units in Oklahoma: Sooner Units 1 & 2, Muskogee Units 4 & 5, Northeastern Units 3 &4, October 2010, in support of 76 FR 16168 (March 26, 2011). My work was upheld in: *State of Oklahoma v. EPA*, App. Case 12-9526 (10th Cri. July 19, 2013).
- Identified errors in N_2O emission factors in the Mandatory Greenhouse Gas Reporting Rule, 40 CFR 98, and prepared technical analysis to support Petition for Rulemaking to Correct Emissions Factors in the Mandatory Greenhouse Gas Reporting Rule, filed with EPA on 10/28/10.
- Assisted interested parties develop input for and prepare comments on the Information Collection Request for Petroleum Refinery Sector NSPS and NESHAP Residual Risk and Technology Review, 75 FR 60107 (9/29/10).
- Technical reviewer of EPA's "Emission Estimation Protocol for Petroleum Refineries," posted for public comments on CHIEF on 12/23/09, prepared in response to the City of Houston's petition under the Data Quality Act (March 2010).
- Researched and wrote comments on SCR cost effectiveness for EPA's Advanced Notice of Proposed Rulemaking, Assessment of Anticipated Visibility Improvements at Surrounding Class I Areas and Cost Effectiveness of Best Available Retrofit Technology for Four Corners Power Plant and Navajo Generating Station, 74 FR 44313 (August 28, 2009).
- Researched and wrote comments on Proposed Rule for Standards of Performance for Coal Preparation and Processing Plants, 74 FR 25304 (May 27, 2009).

- Prepared comments on draft PSD permit for major expansion of midwest refinery to process up to 100% tar sands crudes. Participated in development of monitoring and controls to mitigate impacts and in negotiating a Consent Decree to settle claims in 2008.
- Reviewed and assisted interested parties prepare comments on proposed Kentucky air toxic regulations at 401 KAR 64:005, 64:010, 64:020, and 64:030 (June 2007).
- Prepared comments on proposed Standards of Performance for Electric Utility Steam Generating Units and Small Industrial-Commercial-Industrial Steam Generating Units, 70 FR 9706 (February 28, 2005).
- Prepared comments on Louisville Air Pollution Control District proposed Strategic Toxic Air Reduction regulations.
- Prepared comments and analysis of BAAQMD Regulation, Rule 11, Flare Monitoring at Petroleum Refineries.
- Prepared comments on Proposed National Emission Standards for Hazardous Air Pollutants; and, in the Alternative, Proposed Standards of Performance for New and Existing Stationary Sources: Electricity Utility Steam Generating Units (MACT standards for coal-fired power plants).
- Prepared Authority to Construct Permit for remediation of a large petroleum-contaminated site on the California Central Coast. Negotiated conditions with agencies and secured permits.
- Prepared Authority to Construct Permit for remediation of a former oil field on the California Central Coast. Participated in negotiations with agencies and secured permits.
- Prepared and/or reviewed hundreds of environmental permits, including NPDES, UIC, Stormwater, Authority to Construct, Prevention of Significant Deterioration, Nonattainment New Source Review, Title V, and RCRA, among others.
- Participated in the development of the CARB document, *Guidance for Power Plant Siting and Best Available Control Technology*, including attending public workshops and filing technical comments.
- Performed data analyses in support of adoption of emergency power restoration standards by the California Public Utilities Commission for "major" power outages, where major is an outage that simultaneously affects 10% of the customer base.
- Drafted portions of the Good Neighbor Ordinance to grant Contra Costa County greater authority over safety of local industry, particularly chemical plants and refineries.
- Participated in drafting BAAQMD Regulation 8, Rule 28, Pressure Relief Devices, including participation in public workshops, review of staff reports, draft rules and other technical materials, preparation of technical comments on staff proposals, research on availability and costs of methods to control PRV releases, and negotiations with staff.

- Participated in amending BAAQMD Regulation 8, Rule 18, Valves and Connectors, including participation in public workshops, review of staff reports, proposed rules and other supporting technical material, preparation of technical comments on staff proposals, research on availability and cost of low-leak technology, and negotiations with staff.
- Participated in amending BAAQMD Regulation 8, Rule 25, Pumps and Compressors, including participation in public workshops, review of staff reports, proposed rules, and other supporting technical material, preparation of technical comments on staff proposals, research on availability and costs of low-leak and seal-less technology, and negotiations with staff.
- Participated in amending BAAQMD Regulation 8, Rule 5, Storage of Organic Liquids, including participation in public workshops, review of staff reports, proposed rules, and other supporting technical material, preparation of technical comments on staff proposals, research on availability and costs of controlling tank emissions, and presentation of testimony before the Board.
- Participated in amending BAAQMD Regulation 8, Rule 18, Valves and Connectors at Petroleum Refinery Complexes, including participation in public workshops, review of staff reports, proposed rules and other supporting technical material, preparation of technical comments on staff proposals, research on availability and costs of low-leak technology, and presentation of testimony before the Board.
- Participated in amending BAAQMD Regulation 8, Rule 22, Valves and Flanges at Chemical Plants, etc, including participation in public workshops, review of staff reports, proposed rules, and other supporting technical material, preparation of technical comments on staff proposals, research on availability and costs of low-leak technology, and presentation of testimony before the Board.
- Participated in amending BAAQMD Regulation 8, Rule 25, Pump and Compressor Seals, including participation in public workshops, review of staff reports, proposed rules, and other supporting technical material, preparation of technical comments on staff proposals, research on availability of low-leak technology, and presentation of testimony before the Board.
- Participated in the development of the BAAQMD Regulation 2, Rule 5, Toxics, including participation in public workshops, review of staff proposals, and preparation of technical comments.
- Participated in the development of SCAQMD Rule 1402, Control of Toxic Air Contaminants from Existing Sources, and proposed amendments to Rule 1401, New Source Review of Toxic Air Contaminants, in 1993, including review of staff proposals and preparation of technical comments on same.
- Participated in the development of the Sunnyvale Ordinance to Regulate the Storage, Use and Handling of Toxic Gas, which was designed to provide engineering controls for gases that are not otherwise regulated by the Uniform Fire Code.

- Participated in the drafting of the Statewide Water Quality Control Plans for Inland Surface Waters and Enclosed Bays and Estuaries, including participation in workshops, review of draft plans, preparation of technical comments on draft plans, and presentation of testimony before the SWRCB.
- Participated in developing Se permit effluent limitations for the five Bay Area refineries, including review of staff proposals, statistical analyses of Se effluent data, review of literature on aquatic toxicity of Se, preparation of technical comments on several staff proposals, and presentation of testimony before the Bay Area RWQCB.
- Represented the California Department of Water Resources in the 1991 Bay-Delta Hearings before the State Water Resources Control Board, presenting sworn expert testimony with cross examination and rebuttal on a striped bass model developed by the California Department of Fish and Game.
- Represented the State Water Contractors in the 1987 Bay-Delta Hearings before the State Water Resources Control Board, presenting sworn expert testimony with cross examination and rebuttal on natural flows, historical salinity trends in San Francisco Bay, Delta outflow, and hydrodynamics of the South Bay.
- Represented interveners in the licensing of over 20 natural-gas-fired power plants and one coal gasification plant at the California Energy Commission and elsewhere. Reviewed and prepared technical comments on applications for certification, preliminary staff assessments, final staff assessments, preliminary determinations of compliance, final determinations of compliance, and prevention of significant deterioration permits in the areas of air quality, water supply, water quality, biology, public health, worker safety, transportation, site contamination, cooling systems, and hazardous materials. Presented written and oral testimony in evidentiary hearings with cross examination and rebuttal. Participated in technical workshops.
- Represented several parties in the proposed merger of San Diego Gas & Electric and Southern California Edison. Prepared independent technical analyses on health risks, air quality, and water quality. Presented written and oral testimony before the Public Utilities Commission administrative law judge with cross examination and rebuttal.
- Represented a PRP in negotiations with local health and other agencies to establish impact of subsurface contamination on overlying residential properties. Reviewed health studies prepared by agency consultants and worked with agencies and their consultants to evaluate health risks.

WATER QUALITY/RESOURCES

- Directed and participated in research on environmental impacts of energy development in the Colorado River Basin, including contamination of surface and subsurface waters and modeling of flow and chemical transport through fractured aquifers.

- Played a major role in Northern California water resource planning studies since the early 1970s. Prepared portions of the Basin Plans for the Sacramento, San Joaquin, and Delta basins including sections on water supply, water quality, beneficial uses, waste load allocation, and agricultural drainage. Developed water quality models for the Sacramento and San Joaquin Rivers.
- Conducted hundreds of studies over the past 40 years on Delta water supplies and the impacts of exports from the Delta on water quality and biological resources of the Central Valley, Sacramento-San Joaquin Delta, and San Francisco Bay. Typical examples include:
    1. Evaluate historical trends in salinity, temperature, and flow in San Francisco Bay and upstream rivers to determine impacts of water exports on the estuary;
    2. Evaluate the role of exports and natural factors on the food web by exploring the relationship between salinity and primary productivity in San Francisco Bay, upstream rivers, and ocean;
    3. Evaluate the effects of exports, other in-Delta, and upstream factors on the abundance of salmon and striped bass;
    4. Review and critique agency fishery models that link water exports with the abundance of striped bass and salmon;
    5. Develop a model based on GLMs to estimate the relative impact of exports, water facility operating variables, tidal phase, salinity, temperature, and other variables on the survival of salmon smolts as they migrate through the Delta;
    6. Reconstruct the natural hydrology of the Central Valley using water balances, vegetation mapping, reservoir operation models to simulate flood basins, precipitation records, tree ring research, and historical research;
    7. Evaluate the relationship between biological indicators of estuary health and down-estuary position of a salinity surrogate (X2);
    8. Use real-time fisheries monitoring data to quantify impact of exports on fish migration;
    9. Refine/develop statistical theory of autocorrelation and use to assess strength of relationships between biological and flow variables;
    10. Collect, compile, and analyze water quality and toxicity data for surface waters in the Central Valley to assess the role of water quality in fishery declines;
    11. Assess mitigation measures, including habitat restoration and changes in water project operation, to minimize fishery impacts;
    12. Evaluate the impact of unscreened agricultural water diversions on abundance of larval fish;

13. Prepare and present testimony on the impacts of water resources development on Bay hydrodynamics, salinity, and temperature in water rights hearings;
14. Evaluate the impact of boat wakes on shallow water habitat, including interpretation of historical aerial photographs;
15. Evaluate the hydrodynamic and water quality impacts of converting Delta islands into reservoirs;
16. Use a hydrodynamic model to simulate the distribution of larval fish in a tidally influenced estuary;
17. Identify and evaluate non-export factors that may have contributed to fishery declines, including predation, shifts in oceanic conditions, aquatic toxicity from pesticides and mining wastes, salinity intrusion from channel dredging, loss of riparian and marsh habitat, sedimentation from upstream land alternations, and changes in dissolved oxygen, flow, and temperature below dams.

- Developed, directed, and participated in a broad-based research program on environmental issues and control technology for energy industries including petroleum, oil shale, coal mining, and coal slurry transport. Research included evaluation of air and water pollution, development of novel, low-cost technology to treat and dispose of wastes, and development and application of geohydrologic models to evaluate subsurface contamination from in-situ retorting. The program consisted of government and industry contracts and employed 45 technical and administrative personnel.
- Coordinated an industry task force established to investigate the occurrence, causes, and solutions for corrosion/erosion and mechanical/engineering failures in the waterside systems (e.g., condensers, steam generation equipment) of power plants. Corrosion/erosion failures caused by water and steam contamination that were investigated included waterside corrosion caused by poor microbiological treatment of cooling water, steam-side corrosion caused by ammonia-oxygen attack of copper alloys, stress-corrosion cracking of copper alloys in the air cooling sections of condensers, tube sheet leaks, oxygen in-leakage through condensers, volatilization of silica in boilers and carry over and deposition on turbine blades, and iron corrosion on boiler tube walls. Mechanical/engineering failures investigated included: steam impingement attack on the steam side of condenser tubes, tube-to-tube-sheet joint leakage, flow-induced vibration, structural design problems, and mechanical failures due to stresses induced by shutdown, startup and cycling duty, among others. Worked with electric utility plant owners/operators, condenser and boiler vendors, and architect/engineers to collect data to document the occurrence of and causes for these problems, prepared reports summarizing the investigations, and presented the results and participated on a committee of industry experts tasked with identifying solutions to prevent condenser failures.

- Evaluated the cost effectiveness and technical feasibility of using dry cooling and parallel dry-wet cooling to reduce water demands of several large natural-gas fired power plants in California and Arizona.
- Designed and prepared cost estimates for several dry cooling systems (e.g., fin fan heat exchangers) used in chemical plants and refineries.
- Designed, evaluated, and costed several zero liquid discharge systems for power plants.
- Evaluated the impact of agricultural and mining practices on surface water quality of Central Valley steams. Represented municipal water agencies on several federal and state advisory committees tasked with gathering and assessing relevant technical information, developing work plans, and providing oversight of technical work to investigate toxicity issues in the watershed.

AIR QUALITY/PUBLIC HEALTH

- Prepared or reviewed the air quality and public health sections of hundreds of EIRs and EISs on a wide range of industrial, commercial and residential projects.
- Prepared or reviewed hundreds of NSR and PSD permits for a wide range of industrial facilities.
- Designed, implemented, and directed a 2-year-long community air quality monitoring program to assure that residents downwind of a petroleum-contaminated site were not impacted during remediation of petroleum-contaminated soils. The program included real-time monitoring of particulates, diesel exhaust, and BTEX and time integrated monitoring for over 100 chemicals.
- Designed, implemented, and directed a 5-year long source, industrial hygiene, and ambient monitoring program to characterize air emissions, employee exposure, and downwind environmental impacts of a first-generation shale oil plant. The program included stack monitoring of heaters, boilers, incinerators, sulfur recovery units, rock crushers, API separator vents, and wastewater pond fugitives for arsenic, cadmium, chlorine, chromium, mercury, 15 organic indicators (e.g., quinoline, pyrrole, benzo(a)pyrene, thiophene, benzene), sulfur gases, hydrogen cyanide, and ammonia. In many cases, new methods had to be developed or existing methods modified to accommodate the complex matrices of shale plant gases.
- Conducted investigations on the impact of diesel exhaust from truck traffic from a wide range of facilities including mines, large retail centers, light industrial uses, and sports facilities. Conducted traffic surveys, continuously monitored diesel exhaust using an aethalometer, and prepared health risk assessments using resulting data.

- Conducted indoor air quality investigations to assess exposure to natural gas leaks, pesticides, molds and fungi, soil gas from subsurface contamination, and outgasing of carpets, drapes, furniture and construction materials. Prepared health risk assessments using collected data.
- Prepared health risk assessments, emission inventories, air quality analyses, and assisted in the permitting of over 70 1 to 2 MW emergency diesel generators.
- Prepare over 100 health risk assessments, endangerment assessments, and other health-based studies for a wide range of industrial facilities.
- Developed methods to monitor trace elements in gas streams, including a continuous real-time monitor based on the Zeeman atomic absorption spectrometer, to continuously measure mercury and other elements.
- Performed nuisance investigations (odor, noise, dust, smoke, indoor air quality, soil contamination) for businesses, industrial facilities, and residences located proximate to and downwind of pollution sources.

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Assessment, Control and Remediation of LNAPL Contaminated Sites, API and USEPA, 9/94
Pesticides in the TIE Process, SETAC, 6/96
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Design of Gas Turbine Combined Cycle and Cogeneration Systems, Thermoflow, 12/00
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CEQA Update, UC Berkeley Extension, 3/02
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McIlvaine Hot Topic Hour, Mercury and Toxics Monitoring, 2/5/09
McIlvaine Hot Topic Hour, Dry Precipitator Efficiency Improvements, 2/12/09
McIlvaine Hot Topic Hour, Coal Selection & Impact on Emissions, 2/26/09
McIlvaine Hot Topic Hour, 98% Limestone Scrubber Efficiency, 7/9/09
McIlvaine Hot Topic Hour, Carbon Management Strategies and Technologies, 6/24/10
McIlvaine Hot Topic Hour, Gas Turbine O&M, 7/22/10McIlvaine Hot Topic Hour, Industrial Boiler MACT – Impact and Control Options, March 10, 2011McIlvaine Hot Topic Hour, Fuel Impacts on SCR Catalysts, June 30, 2011.

Interest Rates, PDH P204, 3/9/12

Mechanics Liens, PDHOnline, 2/24/13.
Understanding Concerns with Dry Sorbent Injection as a Coal Plant Pollution Control, Webinar #874-567-839 by Cleanenergy.Org, March 4, 2013
Webinar: Coal-to-Gas Switching: What You Need to Know to Make the Investment, sponsored by PennWell Power Engineering Magazine, March 14, 2013. Available at: https://event.webcasts.com/viewer/event.jsp?ei=1013472.

EXHIBIT 2

Sacramento Carson cogeneration plant - CEC ID G0085

Data for combined cycle portion of the plant - the portion using biogas

Data for stand-alone C

Capacity: 48

Year	MMBtu in (all to CT)		Mwh out		Combined heat rate (Btu/kwh)	Capacity factor	MMBtu	Mwh
	Gas	Biogas	CT	ST				
2020	2110840	73158	181572	38311	9933	35.1%	78843	6638
2019	2558320	116226	233320	50068	9438	45.2%	113207	9128
2018	3012800	99321	280977	64752	9002	55.2%	238023	22335
2017	2473880	98296	224483	52520	9286	44.2%	106562	9632
2016	3280480	136138	294064	68247	9430	57.8%	201283	17950
5-year total	13436320	523139	1214416	273898	9379	47.5%	737918	65683

Source: https://ww2.energy.ca.gov/almanac/electricity_data/web_qfer/plant_stats_2_cms.php?PlantValue=G0085

SMUD Cosumnes combined cycle plant - CEC ID G0889

2020	25442400	592231	2400010	1293480	7049	79.6%
2019	19025480	237391	1784585	966588	7002	59.3%
2018	23305300	368644	2232640	1165990	6966	73.2%
2017	22253900	393090	2049730	1142570	7094	68.8%
2016	26374400	355654	2536570	1322520	6927	83.1%
5-year total	1.16E+08	1947010	11003535	5891148	7005	72.8%

Source: https://ww2.energy.ca.gov/almanac/electricity_data/web_qfer/plant_stats_2_cms.php?PlantValue=G0889

T

Mw

Heat rate (Btu/kwh)	Capacity factor
11877.52	1.6%
12402.17	2.2%
10656.95	5.3%
11063.33	2.3%
11213.54	4.3%
11234.54	3.1%

EXHIBIT B

June 2, 2021

Kyle Jones
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520 Capitol Mall, Suite 350
Sacramento, CA 95814
(916) 444-6201

Subject: Comments on the Draft Initial Study/ Mitigated Negative Declaration for the Regional San Biogeneration Facility Project. State clearing house number 2021050080.

Dear Mr. Jones,

This letter contains my comments regarding the biological resource impact analysis for the Draft Initial Study/Mitigated Negative Declaration (IS/MND) for the for the Regional San Biogeneration Facility Project (Project) in Sacramento, California IS/MND asserts that all Project related impacts to wildlife and vegetation will be less than significant with their proposed mitigation. However, there are erroneous conclusions and omissions made by the IS/MND regarding type and degree of impacts on biological resources, and how those impacts will be successfully mitigated. The discussion below addresses some of these errors.

I. THE IS/MND'S ENVIRONMENTAL SETTING DESCRIPTION AND ANALYSIS IS INCOMPLETE.

Various descriptions and details regarding the biological resources relevant to the Project are inappropriately minimized, confusing, incorrect, or omitted. Some examples are as follows:

A. The IS/MND Minimizes Project Impacts to Surrounding Bufferlands

The Sacramento Regional County Sanitation District (RegionalSan / Applicant) is proposing to construct and operate the Project on land bordering the existing water treatment site, where the proposed Project would use biogas produced by the Sacramento Regional Wastewater Treatment Plant's (SRWTP) anaerobic digesters to generate heat and power. Direct and indirect impacts would occur in the Project construction footprint, the staging area, and areas bordering and in proximity to the site, the latter referred to as the Bufferlands. As noted by the IS/MND, the Project would directly disturb approximately 5.6 acres during construction and staging.

In describing the environmental setting of the Project, the IS/MND describes the 2,150 acres of Bufferlands that border the area as "grasslands interspersed with creeks vernal pools and seasonal wetlands."[1] This minimalist description fails to relate to the reviewing audience unfamiliar with this region that the Bufferlands have a high biological value by way of a remarkable number of protected species using it throughout all seasons.

Its existence is unique and of particular importance given it is a breeding, foraging, stopover oasis, and corridor in the center of a highly developed urban setting. The RegionalSan's website describes it as a "natural treasure…a varied mix of upland and wetland habitats, the Bufferlands is an important wildlife area, supporting more than 230 species of birds, 25 species of native mammals and several native fish, amphibians, and reptiles. The Bufferlands is also home to more than 20 species of rare plants and animals, including several threatened and endangered species such as Swainson's hawk, vernal pool fairy shrimp and giant garter snakes…This area now provides high-quality habitat for many species of waterfowl and other wetland birds and mammals, including the annual return of thousands of canvasback ducks, a species that had all but disappeared from this region."[2] This description underscores the uniquely high biodiversity of the areas bordering the Project site to construction impacts; in essence it is a wildlife oasis in a urban sea of degraded and developed lands. With such high use by dozens of special status,

[1] IS/MND p. 3-4
[2] See https://www.regionalsan.com/bufferlands

i.e. at-risk species, it is also highly vulnerable to direct and indirect impacts from nearby development.

B. The IS/MND Incorrectly Eliminates the Drainage Ditch and the Giant Garter Snake from Analysis and Mitigation

The IS/MND describes the Project site and staging area as having four land cover i.e., habitat types, one of which they refer to as "drainage ditch". Although this is a correct descriptor for how it is used by humans, it provides inadequate context in respect to wildlife use and related potential impacts. The IS/MND should instead use the standard ecological terms for the floral aspects of environmental settings by describing habitat or vegetation communities present, thus providing a more inclusive context for impact analysis.

There is no habitat type characterized as "drainage ditch". The term that should be used to describe the ditch should make it clear that is a type of wetland characterized by whatever soil(s) and vegetation species it is comprised of such as Hairy leaved sunflower (*Helianthus annuus*) (mentioned in the IS/MND) and other species, including any aquatic or semi aquatic species present in and bordering the ditch.[3] The Applicant is obligated to survey the ditch and surroundings - when inundated - to provide baseline data of use by aquatic and semi aquatic wildlife; such information is necessary for baseline accurate impact analysis.

Where landscapes are dominated by agriculture and partial development, semi-natural areas including drainage ditches provide critical habitat for biodiversity, including invertebrates and amphibians and their prey species, in an otherwise inhospitable matrix.[4, 5] Small wetland habitats (both artificial and natural) within agricultural land and other degraded vegetation

[3] IS/MND p.?
[4] Thiere G, Milenkovski S, Lindgren P-E, Sahlén G, Berglund O, Weisner SEB. 2009. Wetland creation in agricultural landscapes: Biodiversity benefits on local and regional scales. *Biological Conservation* 142: 964–973.
[5] Rolke, D. *et. al.* 2018. Drainage ditches as important habitat for species diversity and rare species of aquatic beetles in agricultural landscapes (Insecta: Coleoptera). J. of Limnology. Vol 77.
https://www.researchgate.net/publication/326876321_Drainage_ditches_as_important_habitat_for_species_diversity_and_rare_species_of_aquatic_beetles_in_agricultural_landscapes_Insecta_Coleoptera
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4596843/

communities have been demonstrated to contribute significantly to regional diversity levels.[6] Additionally, measuring and managing abiotic (e.g. ammonia and dissolved oxygen) and biotic variables of runoff entering and exiting drainage ditches has been demonstrated to be an important component of managing wastewater treatment facility byproducts that enter the surrounding environment. [7, 8]

The IS/MND excludes the drainage ditch as part of the environmental setting by stating that it is exempted from state or federal jurisdiction as a "protected wetland". However, this exemption does not apply to direct or indirect impacts to wildlife species from the Project, including wildlife that may rely on ditch residents as an important food source. The importance of this fact is underscored by the IS/MND's mention of the bullfrog (*Rana catesbiana*) as potentially using the site on a regular basis.[9] The IS/MND also mentions that suitable habitat for the federally (Endangered Species Act/ ESA) and state (California Endangered Species Act/ CESA) threatened species the giant garter snake (*Thamnophis gigas*) exists within 370 feet of the Project site but is separated from the Project footprint by the what the IS/MND mistakenly considers to be a complete barrier to potential to movement towards the Project vicinity by the snake species.[10]

Based on such, the IS/MND concludes that the species is not expected to occur on site and thus does not discuss it for impact analysis. This is an incorrect conclusion based on the erroneous assumption that the drainage ditch is not *T. gigas* habitat, and that any individual of the species must be coming from one location only, 370 feet away to occupy or forage at the drainage ditch. As importantly, the IS/MND states that "the SRWTP is within the urban development area boundary of the SSHCP [South Sacramento Habitat Conservation Plan] and thus eligible for

[6] Herzon I, Helenius J. 2008. Agricultural Drainage Ditches, Their Biological Importance and Functioning. *Biological Conservation* 141: 1171–1183.
[7] Johnson, A. C. *et. al.* 2019. What Works? The Influence of Changing Wastewater Treatment Type, Including Tertiary Granular Activated Charcoal On Downstream Macroinvertebrate Biodiversity Over Time, *Environmental Toxicology and Chemistry*. DOI: 10.1002/etc.4460
[8] Center for Ecology and Hydrology. August 14th, 2019. Improved Sewage Treatment Has Increased Biodiversity Over Past 30 Years. https://phys.org/news/2019-08-sewage-treatment-biodiversity-years.html
[9] IS/MND p.3-24
[10] IS/MND p. 3-22

coverage. Project mitigation measures are consistent with the covered species take avoidance and minimization measures (AMMs) in the SSHCP."

This is incorrect. First, the IS/MND fails to mention that the SSHCP has mapped a giant garter snake occurrence in same location as the Project site.[11] Such an occurrence is not surprising given that giant garter snake's historical prey of native fish, frogs, and tadpoles have been extirpated in much of the species' range, leaving it to rely heavily on introduced fish and bullfrogs as primary prey.[12] As the IS/MND points out, some species like the bullfrog may be present on and bordering the Project site. Photos 1 and 2 demonstrate predation of adult and neonate bullfrogs by a giant garter snake.

It is important to note that the presence of *T. gigas* may not be restricted to wetlands. The giant garter snake is primarily an aquatic species but also occupies upland terrestrial habitat that may be far from wetland (breeding season) habitat, particularly during the winter.[13] Indeed as a snake researcher I have observed an adult *T. gigas* individual in associated uplands over 150 meters distant from wetland habitat.

Second, the SSHCP states that if the giant garter snake modeled habitat map (SSHCP Figure 3-18) shows that habitat for giant garter snake is present within a Project footprint or within 300 feet of a Project footprint, then "an approved biologist will conduct a field investigation to delineate giant garter snake aquatic habitat within the Project footprint and adjacent areas within 300 feet of the Project footprint."[14] The SSHCP goes on to state the applicant will use this

[11] County of Sacramento, City of Rancho Cordova, City of Galt, Sacramento County Water Agency, Sacramento Regional County Sanitation RegionalSan, and the Southeast Connector Joint Powers Authority. 2018. *Final South Sacramento Habitat Conservation Plan*. January 2018. Sacramento, CA. Figure 3-18 https://planning.saccounty.net/PlansandProjectsIn-Progress/Documents/SSCHP/SSHCP_.pdf

[12] Ersan, J. 2015. Diet And Prey Preference of Giant Gartersnakes (*Thamnophis gigas*) In The Sacramento Valley Of California. Masters Thesis, CSU, East Bay. https://www.researchgate.net/publication/299284672_Diet_and_Prey_Preference_of_Giant_Gartersnakes_Thamnophis_gigas_in_the_Sacramento_Valley_of_California

[13] Halstead, B.J., Wylie, G.D., and Casazza, M.L. 2015, Literature review of giant gartersnake (*Thamnophis gigas*) biology and conservation: U.S. Geological Survey (USGS) Open-File Report 2015–1150, 38 p., http://dx.doi.org/10.3133/ofr20151150.

[14] County of Sacramento, City of Rancho Cordova, City of Galt, Sacramento County Water Agency, Sacramento Regional County Sanitation RegionalSan, and the Southeast Connector Joint Powers Authority. 2018. *Final South Sacramento Habitat Conservation Plan*. January 2018. Sacramento, CA. Figure 3-18 https://planning.saccounty.net/PlansandProjectsIn-Progress/Documents/SSCHP/SSHCP_.pdf p. 5-97

information to finalize Project design, and that giant garter snake habitat must identified and fully avoided for Covered Activities (including the Project).

Recognizing the value of the drainage ditch as a viable wildlife habitat and prey source for the giant garter snake and possibly other sensitive species is essential for impact analysis and any required mitigation. Additionally, to be in compliance with the SSHCP, the IS/MND is obligated to incorporate information regarding the potential for habitat bordering the Project to support presence of the giant garter snake. These omissions must be remedied in the IS/MND. It should be noted that impact reduction does not necessarily require compensatory mitigation of wetland habitat. For instance, it could be comprised of drainage ditch and/or nearby wetland habitat management, including management of any invasive species that may cause significant harm to the giant garter snake if present (e.g., spiny catfish), or enhancement of wetlands near the Project to support a viable population of the giant garter snake. Because the RegionalSan is already collaborating in research and management in the Bufferlands,[15] taking a few steps to enhance viability of a species that is federally and state threatened due to extensive loss of wetland habitat would be a reasonable mitigation action.

C. The IS/MND Presents Confusing Descriptions of Biological Resources

Figure 4.3-1[16] in the IS/MND identifies biological resources on and near the Project. It indicates that at roughly 560, 420, and 200 feet to the north and the east, respectively, are two locations of Swainson's hawk nests recorded within the last five years. To the west the Bufferlands begin at approximately 0.8 miles from the Project (not mapped in the IS/MND). The IS/MND states that five Fremont cottonwood trees (*Populus fremontii*) with crowns between 7 and 10 feet high are located east of the staging area.[17]

There are several descriptions regarding biological resources that are contrary to what the figures present in the IS/MND. Table 3.4-1 states that the "trees" east of the staging area do

[15] See https://www.regionalsan.com/bufferlands-research
[16] IS/MND p. 3-21
[17] IS/MND p.3-22

not provide suitable nesting habitat for Swainson's hawk. The IS/MND further states that the "trees" to the east of the Project preclude raptors from nesting in them due to their height.[18] The IS/MND then states that the nearest Swainson's hawk nest was active in 2020 in a willow tree 100 feet northeast of the Project, however no such nest location at that distance is mapped in figure 4.3-1. Table 3.4-1 states that the nearest known nest location of Swainson's hawks is 100 feet *west* of the Project site.

IS/MND Table 3.4-1 states that the loggerhead shrike may forage within "the annual grassland", and that the riparian area north and *west* of Project site provides suitable nesting and foraging habitat.[19] However the IS/MND later states "the Loggerhead shrike, which is designated by CDFW as a species of special concern, is known to nest in the *south* portion of the main SRWTP facilities area along Bufferlands Road and could nest in other locations in the surrounding area. Construction of the proposed Project could disturb nesting loggerhead shrike if they were to nest within the riparian area adjacent to the Project site."[20]

This is unclear. According to my personal observations and the Cornell Ornithological laboratory, loggerhead shrikes often build their nests in thorny vegetation including trees, shrubs, and sometimes in brush piles or tumbleweeds.[21] Average height of nests above the ground ranges from about 2.5–4 feet. As such loggerhead shrikes may readily forage on the Project site and also potentially nest in close proximity to the north or *east* of the staging area in the Bufferlands, with nesting sites not limited to riparian habitats.

In Appendix B, Special Status Species, the IS/MND states that the federally threatened Elderberry Longhorn beetle is not expected to occur because elderberry shrubs are approximately 260 feet southwest of the Project site. This is confusing, since the IS/MND maps elderberry shrubs to the east and north of the Project in Figure 3.4-1.

[18] IS/MND p.3-24
[19] Ibid.
[20] IS/MND p.3-26
[21] See https://www.allaboutbirds.org/guide/Loggerhead_Shrike/lifehistory

II. The IS/MND FAILS TO ADEQUATELYANALYZE IMPACTS TO BIRDS

A. Analysis of Loss of Avian Foraging Habitat is Inadequate

The MND states that vegetation on parts of the Project site is "tall and thick, limiting the foraging potential for raptors. Due to ongoing disturbance, lack of prey availability, and habitat conditions, this site is considered low quality foraging habitat for Swainson's hawk and other raptors. In addition, Regional San mitigated for the loss of Swainson's hawk foraging habitat within the Project site and staging area as part of the EchoWater Project (Regional San 2014)."[22] Based upon this statement the IS/MND claims that the loss of 5.6 acres development of the Project footprint would not cause any significant impacts to foraging Swainson's hawks, a CESA threatened protected species.

This is an erroneous conclusion. First, CEQA analysis is based upon the current environmental setting; past mitigation conducted for other Projects are not applicable to this Project proposal and related potential impacts. Second, it is a specious argument to lump several raptor species - with variable foraging behaviors, requirements, prey preferences, and natural histories unique to the local region and habitats - together under one conclusion regarding foraging behavior. Therefore, to describe the environmental setting as "vegetation too tall and thick" or "barren" is unscientific for biologically sound conclusions about foraging of several species. For instance, a primary prey source for the Swainson's hawk (SWHA) are grasshoppers,[23] which are known to occur in a wide variety of settings from suburban to agricultural to desert scrub habitats. I have personally observed Swainson's Hawks foraging on flying ants in the desert where vegetation was very sparse, and on grasshoppers along weedy edges of agricultural lands. As such the Project site may provide potential foraging habitat for what the IS/MND correctly acknowledges as very high potential for Swainson's Hawks to (re)nest next to the border of the Project footprint, as they did in 2020 and previous years.

[22] IS/MND p. 3-25
[23] Swainson's hawk foraging and prey citation

Depending on the diversity of grasshoppers and other similar insects on site, the Project area could also provide foraging habitat for the loggerhead shrike.[24] The loggerhead shrike is mentioned here since it is a covered species under the SSHCP "Covered Raptor Species" mitigation details, and the IS/MND mentions it by way of dismissal of significant Project development impacts to raptor species.

In summary, the loss of 5.6 acres of potential foraging habitat for nearby nesting Swainson's Hawks and loggerhead shrikes should be addressed by the IS/MND as a significant impact to be mitigated. The RegionalSan claims to be an astute environmental steward, stating,

> "Talking about environmental protection is good, but doing something about it is even better. At Regional San, we believe that protecting the environment for future generations requires a concerted effort across many fronts. Motivated by a strong environmental ethic, dedicated staff throughout our organization lead the way in environmental action founded on the latest scientific research and accomplished with appropriate uses of technology."[25] and "The unique nature of the Bufferlands and its relationship with the Sacramento Regional Wastewater Treatment Plant have gained both local and worldwide attention."[26]

As such, mitigation for loss of up to 5.6 acres of foraging habitat should not be considered unreasonable or onerous on the part of the Applicant. This is especially true considering the staff and collaborating organizations are already in place and working to conduct research and administer creative mitigation solutions that may include, for example, restoration or enhancement of degraded habitat in the Bufferlands to provide higher quality foraging habitat for a variety of protected species, including the Swainson's hawk and loggerhead shrike. Indeed, it appears that such enhancement could also serve to generate increased future revenue from environmental education as well as passive recreational enjoyment of the

[24] citation regarding loggerhead shrike foraging and prey
[25] https://www.regionalsan.com/environmental-protection
[26] https://www.regionalsan.com/bufferlands

Bufferlands, thus contributing to significant and measurable benefits to the local community from such mitigation.[27]

B. Analysis of Impacts to Sandhill Cranes is Inadequate

The IS/MND states that the lesser sandhill crane, a California state Species Of Special Concern, and the greater sandhill crane, protected as threatened under the CESA, are regular and often daily visitors in the Project vicinity. It also states, "Construction of the proposed Project would occur during the dry season (summer) when sandhill cranes do not occur in the region or use habitats in the Bufferlands near the Project site. If Project activities were initiated during winter when the Bufferlands are being used by sandhill cranes for foraging or resting, the cranes would likely move offsite because suitable habitat is available and relatively abundant adjacent to the Project site on the Bufferlands. Therefore, the disruption to winter habitat within the SRWTP site is not expected to affect the local wintering population abundance or viability of Sandhill crane."[28]

There are several problems with this analysis. First, it relies largely on avoidance of harassment from construction based on the assumption that construction will not occur during the birds' winter residency because it will happen "during the dry season (summer)." However, based upon the IS/MND claims regarding timing of construction to avoid harassment of nesting Swainson's Hawks and burrowing owls within 0.25 mile and 250 feet of the Project in the Bufferlands, as well as the IS/MND summary statement proclaiming construction will commence in Spring 2022 and end in Spring 2024, it is difficult to conclude when construction will actually occur, and meet the Projected deadline, if it must avoid *breeding season* impacts to birds nesting in proximity to the Project in the Bufferlands, and *winter season* due to cranes foraging and resting in proximity to the Project in the Bufferlands.

The IS/MND is circular and confusing where it says, "If Project activities were initiated during winter when the Bufferlands are being used by sandhill cranes for foraging or resting, the

[27] https://www.regionalsan.com/bufferlands-educational-opportunities, see also https://www.regionalsan.com/bufferlands-calendar-events
[28] IS/MND p. 3-29

cranes would likely move offsite because suitable habitat is available and relatively abundant adjacent to the Project site on the Bufferlands." In other words, birds using the Bufferlands will move offsite to the Bufferlands? Even if this sentence did make sense the assumption of avoidance is specious. Once again, the analysis is relying on harassment, not avoidance, to identify an impact. Forcing, hoping, or anticipating birds will just go somewhere else because there is space i.e., habitat "over there" with no harm done due to impacts of construction (dust, noise, lighting, machinery, humans, etc.) once again is not avoidance or mitigation; it is harassment, and not based in science. To assume protected species can just move elsewhere to appease development priorities is not mitigation and it ignores some basic tenets of community ecology, including limiting factors such as predation, competition, prey and food availability, as well as microhabitat differences that are not readily visually observable but may regardless exist and significantly influence successful overwintering and foraging.

This inadequate and incomplete analysis regarding both species of protected cranes underscores the need for focused avian surveys to establish an accurate baseline for the environmental setting for the Project and its surroundings subject to impacts. Surveys should be conducted during both breeding and overwintering season (i.e., spring/ summer and winter) to develop an accurate assessment of use by cranes and a host of other special status species that the IS/ MMD acknowledges may use the Bufferlands foraging and/or nesting, including the Coopers hawk, tricolored Blackbird, golden eagle, burrowing owl, Swainson's hawk, ferruginous hawk, white tailed kite, and loggerhead shrike.

The IS/MND's omission of even a baseline accurate analysis of the potential significant impacts to these protected species - not only in terms of presence / absence but also some data on behavior, use (i.e. foraging, nesting, where, etc.) timing (overwintering or breeding resident) and density (nesting pairs, overwintering flocks) - is a serious oversight that ignores any and all impacts to the species from aspects of construction and development including noise, lighting,

dust, human presence; all variables that have been widely proven to impact negatively impact wildlife breeding and foraging behavior and success.

Obviously, the use of databases like the California Natural Diversity Database (CNDDB) is an important part of generating a baseline; however the environmental setting is incomplete and not representative of the current baseline without on-the-ground surveys necessary to inform impact analysis and mitigation. Successful, reliable mitigation measures must include performance and success criteria based on reality, not speculation or promises that such criteria may (or may not) be developed in the future, post-permitting. Wildlife use and data must be collected scientifically by way of focused surveys; reconnaissance surveys merely provide anecdotal and highly incomplete data on special status species. In summary the applicant is remiss in providing data on the use of many species in the Bufferlands. Such surveys should include at least up to 500 feet from the project development footprint.

III. BIOLOGICAL RESOURCE MITIGATION ANALYSIS AND IMPLEMENTATION IS INCOMPLETE.

A. Mitigation Measure 3.4-1 is Inadequate

This mitigation measure purports to avoid disturbance to Swainson's hawk and other nesting raptors; however it falls short of this goal:

The IS/MND states that, "For construction activities that would occur within 0.25 mile of a known or likely Swainson's hawk nest site (identified based on previous years' use by Swainson's hawk), Regional San will initiate construction activities before the nest initiation phase (i.e., before March 1), if possible. Depending on the timing, regularity, and intensity of construction activity, construction in the area prior to nest initiation may discourage a Swainson's hawk pair from using that site and eliminate the need to implement further nest-protection measures, such as buffers and limited construction operating periods around active

nests. Other measures to deter establishment of nests…may be used prior to the breeding season in areas planned for active construction."[29]

Implementation of this measure is problematic since deterrence of a breeding pair returning to a nest site location (a breeding behavior conducted by a mated pair often referred to as "nest site searching") - due to obligatory evolutionary nest site fidelity that is characteristic of this (and most) avian species[30] - is harassment, not avoidance.[31] Such intentional harassment for a state protected threatened species would be considered "take", for which the Applicant would need to apply to California Department of Fish and Wildlife (CDFW) for a permit or equivalent form of CESA compliance.

The IS/MND states that, "If active Swainson's hawk, or other covered raptor species nest(s) are found within 0.25 mile of any Project-related activity, Regional San will establish a 0.25-mile no-disturbance buffer around the active nest until the young have fledged." This measure is disingenuous in its intention of implementation. First, the Project summary states, "Construction of the Project would last between 18 and 24 months and is anticipated to begin in spring of 2022. The Project is expected to become operational in spring 2024." [32] There is a high likelihood that the breeding Swainson's pair that nested close to (east of) the Project in 2020 will return to re-nest in the same tree or same area. If this pair does not return, another pair that nested nearby within the past five years may likely take over this territory, also due to nest site fidelity and the availability of unused preferred territory. Between nest construction and fledging, Swainson's hawk nesting season lasts several months. As such a pair nesting nearby is highly likely and the 0.25 no disturbance buffer would preclude all construction for several months. See Figure 1 for an illustration of where each nest buffer would extend if a pair renests in any of the locations mapped in the IS/ MMD table 3.4-1.

[29] IS/MND p. 3-26
[30] nest site fidelity citation that's a look at BLE yeah no bees bees honey OK OK you can have that OK
[31] https://wildlife.ca.gov/Conservation/CESA/Permitting/Incidental-Take-Permits
[32] Ibid. p.1

Clearly implementing this mitigation for Swainson's hawk harassment avoidance from construction impacts - including noise, lighting, presence of machinery, and people - would significantly delay the Project timeline, an action that any developer will do whatever is feasible to avoid. In more than 25 years of environmental consulting on development Projects I have never observed any developer, private or otherwise, that has begun construction be willing to stop all or most construction for months at a time for any reason. Instead, what happens is that the developer pressures the wildlife agencies for a "variance" or exemption to the buffer, ignoring biological realities in lieu of what they claim is economic hardship; and the agencies almost always comply.

Further, the IS/MND states, "the size of the buffer may be adjusted if a qualified biologist and Regional San determine that such an adjustment would not be likely to adversely affect the nest. The qualified biologist will be on site daily while construction-related activities are taking place within the buffer. If nesting Swainson's hawks begin to exhibit agitated behavior, such as defensive flights at intruders, getting up from a brooding position, or flying off the nest, the qualified biologist will have the authority to shut down construction activities. If agitated behavior is exhibited, the biologist, and Regional San will meet to determine the best course of action to avoid nest abandonment or take of individuals and will consult CDFW, if necessary, to identify appropriate avoidance measures."[33]

This measure again promotes harassment, not avoidance. CDFW did not create this buffer randomly; it is based on biological data for harassment regarding the species and breeding and foraging success. Such data are collected over time using research-based evidence that measure not only overt visible behavior but also other factors involved in assessing breeding success, including hatching and fledging success and overall changes in fecundity. As such there are no scientifically established indicators or criteria that allow a biologist, regardless of experience, to objectively make a determination - based solely upon visible behavior expressed

[33] IS/MND p. 3-27

by birds for brief moments in time while a biological monitor happens to be watching - regarding the degree of impact of construction on a nesting pair.

For instance, increased noise levels (regarding both power and frequency) over time can have a significant impact and cause failure of a nesting pair based upon different variables, including alterations of communication between adults to changes in metabolism or hormonal levels.[34,35,36,37] Increased lighting, noise, and presence of humans can increase stress levels, risking immunosuppression. These detrimental impacts - that can be cumulative or direct (acute) - will not be readily apparent by random visual observations by the biologist monitoring construction. Therefore, a determination of harassment necessary to stop construction would be entirely subjective and unscientific, not to mention ignores the fact that the measure is supposed to avoid harassment, not be contingent upon observable harassment. Despite all this even if the Applicant succeeded in acquiring permission from CDFW to reduce the no-disturbance buffer by half, i.e., 0.125 mile, it would still preclude construction on the majority of the site. In summary, the IS/ MND has failed to mitigate significant impacts to nesting Swainson's Hawks by deferring mitigation to an infeasible and scientifically unsupported standard.

Finally, the IS/MND fails to mention the County of Sacramento Swainson's Hawk Ordinance, which at the very least requires an analysis by the Office of Planning and Environmental Review to make a mitigation requirement determination.[38] According to the

[34] Campos, I. B., Landers, T. J., Lee, K. D., Lee, W. G., Friesen, M. R., Gaskett, A. C., & Ranjard, L. (2019). Assemblage of Focal Species Recognizers—AFSR: A technique for decreasing false indications of presence from acoustic automatic identification in a multiple species context. *PLoS ONE*, *14*(12), 1–14.
[35] Brown, C. H., & Riede, T. (2017). *Comparative Bioacoustics: An Overview*. Bentham Science Publishers Ltd.
[36] Sugai, L. S. M., Silva, T. S. F., Ribeiro, J. W., & Llusia, D. (2019). Terrestrial Passive Acoustic Monitoring: Review and Perspectives. *BioScience*, *69*(1), 15–25. https://doi-org.jerome.stjohns.edu/10.1093/biosci/biy147
[37] Recent terrestrial studies have evaluated consequences of noise exposure such as declines in foraging efficiency (owls [Mason et al., 2016; Senzaki et al., 2016] and bats [Siemers and Schaub, 2011; Bunkley and Barber, 2015]), heightened vigilance (mammals [Shannon et al., 2014, 2016] and songbirds [Quinn et al., 2006; Ware et al., 2015]), declines in reproductive success (Halfwerk et al., 2011), and altered predator–prey relationships (Francis et al., 2009). From: "Estimating Exposure and Effects of Sound on Wildlife." National Academies of Sciences, Engineering, and Medicine. 2017. *Approaches to Understanding the Cumulative Effects of Stressors on Marine Mammals*. Washington, DC: The National Academies Press. doi: 10.17226/23479.
[38] https://planning.saccounty.net/EnvironmentalDocuments/Pages/SwainsonsHawkOrdinance.aspx

IS/MND this Project is zoned AG-80, and therefore according to the Ordinance it has a "habitat value remaining" of 100% regarding mitigation for foraging habitat.[39] The IS/MND must address this ordinance and what it requires for appropriate mitigation for the Swainson's hawk at this location, regarding the potential for impacts to both foraging and nesting birds

B. Mitigation Measure 3.4-2 is Inadequate

This mitigation measure claims to avoid disturbance of burrowing owl nests; however it fails to do so reliably. The IS/MND states that, in respect to burrowing owls, "If suitable habitat is identified during the initial survey, and if the Project does not fully avoid the habitat, pre-construction surveys will be required. Burrowing owl habitat is fully avoided if Project-related activities do not impinge on a 250-foot buffer established by the qualified biologist around suitable burrows." The IS/MND states that breeding and non-breeding season owl surveys are necessary, however it does not clarify the timing of the initial survey that purports to identify "suitable habitat", the presence of which triggers pre-construction surveys that are necessary for the process of avoiding significant impacts. The criteria for what is "suitable habitat" is not clearly defined, at most it is inferred by the statement, "Burrowing owl habitat is fully avoided if Project-related activities do not impinge on a 250-foot buffer established by the qualified biologist around suitable burrows." However, there is no description or criteria presented that clearly defines what "suitable" means or is measured by; without such one cannot assess the efficacy of this mitigation measure. Therefore, the term "suitable" is meaningless, leaving the mitigation measure vague and ill-defined, resulting in its implementation at risk of being subjectively defined in favor of development timelines imposed on the biologist by his/her employer - the Applicant - instead of clearly defined by biological criteria.

The IS/MND then states, "Avoidance is establishment of a minimum 250-foot buffer zone around nests. Construction and other Project-related activities may occur outside of the 250-

[39] https://planning.saccounty.net/EnvironmentalDocuments/Documents/Swainsons-Hawk/Swainson%27s%20Info%208_14_18.pdf

foot buffer zone. Construction and other Project-related activities may be allowed inside of the 250-foot non-disturbance buffer during the breeding season if the nest is not disturbed" and "If there is any change in owl nesting and foraging behavior as a result of construction activities, the qualified biologist will have the authority to halt activities within the 250-foot buffer. Construction cannot resume within the 250-foot buffer until any owls present are no longer affected by nearby construction activities…" First, allowing construction in a "non-disturbance" buffer is nonsensical and completely negates the reason for creating a buffer. Second, similar to what is iterated above regarding avoidance of Swainson's hawk nests, this measure is based upon observations of harassment, which obviously is not the same as avoidance and thus fails to achieve mitigation of impacts. For reasons also described above, the measure is unscientific and thus unreliable due to being based on subjective and extremely limited short-term observations to indicate harassment, instead of relying on the scientific evidence already used to establish the need for a minimum 250-foot buffer for this species in the scenario posed by the Project.[40]

C. Mitigation Measure 3.4-3 is Inadequate

IS/MND mitigation measure 3.4-3 claims that if the CESA threatened tricolored Blackbird is observed to be nesting within 500 feet of any Project-related activity, a "no-disturbance" buffer will be implemented during breeding season until the young have fledged. It should also be noted that this measure is inappropriately deferred by failing to describe criteria to establish what such a buffer would be and fails to clarify what evidence the "qualified biologist" uses to make such a determination objectively. The significance of this omission is underscored by the IS/MND's statement, "If the qualified biologist determines that tricolored blackbirds are exhibiting agitated behavior, construction will halt until the buffer size is increased to a distance necessary to prevent harm or harassment of nesting tricolored blackbirds."[41] Once again a

[40] CDFW report survey guidelines
[41] IS/MND p. 3-30

presumed mitigation action fails because it is in actuality not avoidance but based on indicators denoting harassment.

The IS/MND states that, "implementation of the Project could adversely affect common migratory birds through disturbance during the breeding season. Loss of active nests of common species would be inconsistent with the Migratory Bird Treaty Act (MBTA)…Potential loss of active nests of common species during Project construction would be limited to those few nests that are present in proximity to noise or visual disturbances during construction and this loss would not substantially reduce the abundance of any species, nor cause any species to drop below self-sustaining level."[42] To be clear, loss of active nests would not merely be "inconsistent" it would be a violation of federal law. Second, the inference that impacts would be limited to "common" species is specious and unsupported. Most importantly, the MBTA prohibits harassment of individual nesting birds. Compliance is therefore not reliant on a determination of impacts to abundance or viability (i.e., "self-sustaining") at a population or species level. Therefore, the claim by the IS/MND that impacts related to migratory species would be less than significant is erroneous.

Based upon the evidence and discussion provided herein, the Project IS/MND fails to meet the requirements of impact analysis and mitigation under the California Environmental Quality Act (CEQA). Based on my responses in this letter, and my extensive experience as a biologist and environmental consultant, it is my professional opinion that the IS/MND has not met the obligations of CEQA and that the Project would result in significant and unmitigated impacts to sensitive biological resources. The impact analysis for biological resources must be revised and resubmitted to disclose, adequately analyze, and mitigate these significant impacts.

[42] IS/MND p. 3-31

Sincerely,

Renée Owens

Conservation Ecologist

M.S. Ecology, M.S. Environmental Science

Photo 1 *T. gigas predating a bullfrog photo by R. Porter*

Photo 2 *T. gigas with regurgitated bullfrog metamorph*

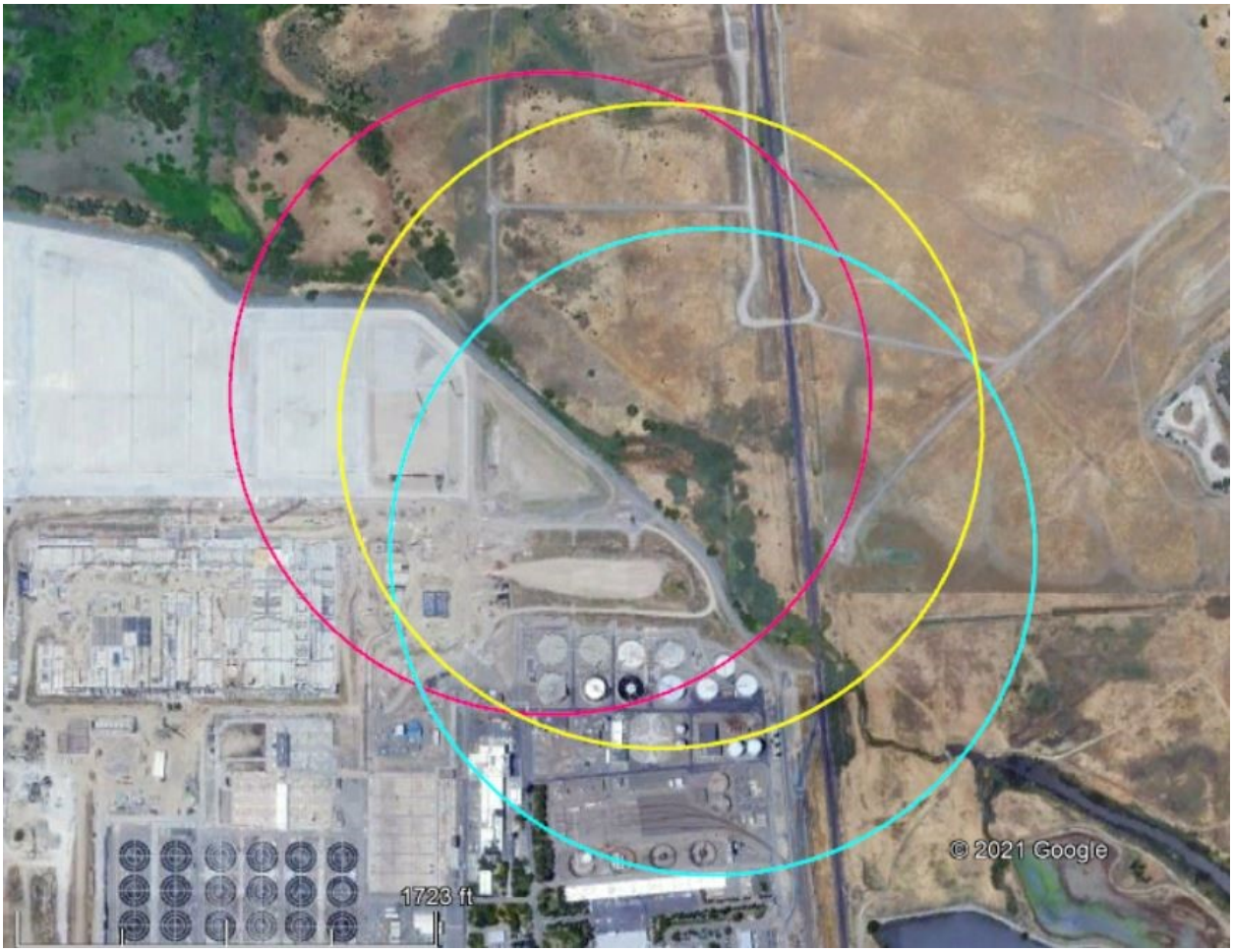

Figure 1 0.25 mile buffers around Swainson's hawk nest locations near Project sites identified in IS/MND (Fig. 3.4-1)

Professional Background

I am a conservation biologist and environmental consultant with over 27 years of professional experience in wildlife ecology and natural resource management. I hold a M.S. degree in Environmental Science and a M.S. degree in Ecology; my teaching experience includes college instruction since 1991 at various colleges and universities. I taught field courses in Tropical Ecology in Ecuador and the Galapagos for Boston University, and was a Visiting Full Time Professor in Environmental Science and Biology at Imperial Valley College.

I have managed an independent environmental consultancy I founded in 1993, contracted for work in the U.S. and Latin America, including in California, Tennessee, Oregon, New York, and Massachusetts. Since 1994 have and currently maintain U.S. Fish and Wildlife (FWS) Recovery permits for listed species under the federal Endangered Species Act (ESA). I hold several state and federal certifications for surveys and monitoring of protected and special status species. I have extensive experience monitoring and studying many species across several taxa, including herpetofauna, terrestrial invertebrates, passerines and raptors, and marine and terrestrial mammals. I have served as a biological resource expert on over 150 Projects involving pipelines, water, urban and rural residential developments, mines, and industrial scale energy Projects; on private, public, and military lands. I have experience observing the species and habitats discussed in the DEIR.

The scope of work I have conducted as an independent environmental contractor, supervisor, and employee has included assisting clients to evaluate and achieve environmental compliance, restoration, mitigation, and research as related to biological resources; as well as submitting analytical reports and comments for such work to oversight agencies. This work includes analyzing actions pursuant to the California Environmental Quality Act (CEQA), the National Environmental Policy Act (NEPA), the Endangered Species Act, the Clean Water Act (CWA), the Migratory Bird Treaty Act (MBTA), and other regulations, along with surveying for and preparing Biological Technical Reports and Assessments. I have been contracted as an environmental consultant by the FWS, the USDA Forest Service, Ultrasystems, ICF, Helix Environmental, URS, AECOM, AMEC, GeomorphIS, Dudek, ESA, Tetra Tech, among others.

My conservation and natural history research on endangered species in Latin America has received awards including the National Geographic Research and Exploration Award and the National Commission for Scientific and Technological Research Award. My research has been featured on National Geographic Television and Discovery Channel documentaries, and I have served as technical consultant for wildlife documentaries filmed by National Geographic Television, Discovery Channel, BBC, and Animal Planet. In 2017 I received a Special Commendation for contributions to environmental conservation from the City of San Diego.

I have gained particular knowledge of the biological resource issues associated with the Project through my extensive work on numerous renewable energy Projects throughout California. Such Projects include years of surveys before, during, and after construction of industrial wind and solar facilities in southern and northern California. My experience includes research, surveys, data collection for impact analysis, CEQA and NEPA document preparation, mitigation and monitoring, and consultation with stakeholders and agencies. Comments are based upon first-hand observations, review of the environmental documents prepared for the Project, review of scientific literature pertaining to biological resources known to occur in and near the Project area, consultation with other biological resource experts, and the knowledge and experience I have acquired throughout almost 30 years of working in the field of natural resources research and management.

Curriculum Vitae

- College Instruction in Biology and Environmental Science; Boston U, SDSU, Palomar College, Imperial Valley College
- Non-profit management
- National Geographic Research and Exploration Award
- Wildlife Conservation Society International Research Grant
- Endangered species Federal Recovery permits
- ESA, CEQA, NEPA, MMPA impact analyses
- Mitigation, Restoration, Project monitoring, HCP planning / implementation
- San Diego City, County, USFWS, BLM approved biologist
- U.S. National Championships Olympic Distance Triathlon
- Special Commendation for Contributions to Environmental Conservation, City of San Diego

Ms. Owens has been a college instructor, environmental consultant and biologist, non-profit manager, writer, and public speaker for over 30 years. Her experience includes work and research in the United States, Venezuela, Ecuador, Belize, Panama, and Honduras.

College Instruction of various courses includes teaching in the broad fields of Environmental Science and Biology at Boston University, Palomar College, Imperial Valley College, and San Diego State University. She has certification in Community College Instruction from the University of California San Diego.

Award winning conservation research by Ms. Owens has been featured by National Geographic, Discovery, BBC, Dateline NBC, Animal Planet, Sierra, and TIME magazine.

Sage Wildlife Biology consultancy co-founded by Ms. Owens in 1993 has provided services for Projects involving endangered species, ethology, ecology, and conservation research, mitigation management, impact analysis, Habitat Conservation Plan design and implementation, and analytical reporting. Projects incorporate monitoring and regulatory compliance from the local to federal level with clients in the private, public, and government sectors, and include energy, housing, transportation Projects. Contracts encompass many species, including but not limited to carnivores, passerines, raptors, shorebirds, herpetofauna, cetaceans, butterflies, and pinnipeds, and their associated habitats. She is an approved biologist for San Diego City and County, USFWS, and BLM.

The Wild Zone Conservation League is a wildlife conservation, education, and research non-profit. As Executive Director Ms. Owens applies her non-profit experience acquired over 30 years to management of citizen science, environmental education, wildlife rescue, and advocacy training to promote conservation, stewardship, and land preserve acquisition.

Ms. Owens gives lectures enhanced by her nature photography and international experiences on endangered species conservation, advocacy, predator co-existence, animal behavior, ornithology, and the cognitive science of environmental leadership and communication.

EDUCATION

- MS Environmental Science. Green Mountain College, Poulsbo, VT.
- Community College Instruction Certification. University of California San Diego, La Jolla, CA.
- Advanced Statistical Programming Certification. U of Tennessee, Knoxville.
- MS Biology, Concentration in Ecology and Evolution. SDSU, San Diego, CA.
- BS Biology, Minor in Environmental Studies. State University of New York, Geneseo, NY.

LANGUAGE SKILLS Native English speaker, fluent in Spanish

WORK EXPERIENCE

TEACHING

Adjunct Professor, Instructor in Environmental Science, Biology. Department of Math, Science, and Engineering, Imperial Valley College, Imperial, CA. 2012 – 2018.

Director/Instructor, Wildlife Conservationist Certification Training Program, created by Ms. Owens with a San Diego Foundation Environmental Vision Fund grant. Provided education and training of adult volunteers for naturalist interpretive and conservation organizations. Wild Zone Conservation League, San Diego, CA. 2009-2011.

Visiting Assistant Professor, Department of Math, Science, and Engineering. Lecture, laboratory, and field trip instruction in Biology, Environmental Science, Botany. Imperial Valley College, Imperial, CA. 2008-2009.

Environmental Education Instructor, Outdoor instructor for educational youth program "Outdoor Explore" investigating Nearby Nature, grades k – 12. San Diego Audubon Society, CA. 2009 - 2010.

Teaching Fellow, Tropical Ecology Program, based at Universidad de San Francisco, Ecuador. Lecture and field instruction in advanced coursework on tropical habitats included cloud and mangrove forest, Pacific intertidal zones, inland rainforest, Galapagos Islands, and high elevation paramo. Boston University. 1999 –2000.

Adjunct, Instructor in General Biology lecture and laboratory. Palomar College, San Marcos, CA. 1994 - 1996.

Teaching Assistant, Instruction for laboratories in General Biology, Zoology, and Invertebrate Biology included creation of additions and updates to General Biology laboratory (with live marine specimens), adopted by the Biology Department for all General Biology laboratories. San Diego State University, San Diego, CA. 1990 – 1992.

Instructional Tutor, for classes in psychology, biology, ecology, anthropology, oceanography, and human fertility. SUNY Geneseo, Geneseo, NY. 1983 – 1987.

PROFESSIONAL ENVIORNMENTAL CONSULTING

Co-Founder, Sage Wildlife Biology LLC. Biological consultant for over 200 hundred Projects, specializing in wildlife biology of for environmental compliance, impact analysis, research, and conservation in California and South America. 1993 – present.

Representative Projects:

> **Wind Turbine System Research.** Created and implemented a Bird and Bat Monitoring program and analysis for patent-pending turbine system, Primo Wind renewable energy design. San Diego Naval Base, CA. 2016-2017.
>
> **Endangered Species.** Protocol surveys, monitoring, and reporting for federally threatened and endangered species, HELIX Environmental Planning Inc., San Diego, CA.

CEQA/NEPA/ESA Consultant. Provide expert biological testimony regarding impact analyses (i.e. MND/EIR/EIS) on conventional energy, renewable energy, residential development, and coastal development Projects in California.

Satellite Communications System LA-RICS. Los Angeles Regional Interoperable Communications System county-wide Project, federally funded to create broadband wireless network using Long-Term Evolution (LTE) technology while minimizing impacts to native habitats and ecosystems. Contributed to Biological Assessment for PEIR/ PEIS, 218-site Project with coastal, mountain, and desert habitats. Management recommendations included maximizing use of existing structures while avoiding impacts to watersheds and other sensitive biological resources. Los Angeles County, CA.

Habitat Conservation Planning. Included federally permitted surveys and reporting for various endangered species; Migratory Bird Treaty Act nesting bird surveys; herptile surveys; population assessments; and concurrent development of Critical Habitat components of Habitat Conservation Plans including the San Diego Multiple Species Conservation Plan. San Diego, Los Angeles, Riverside, San Bernardino Counties, CA.

Mitigation and Restoration. Principal biologist, prepared biological Assessment plus mitigation and monitoring plan for Black Mountain Open Space Park development Project; supervised biological components of mitigation management, including coordination with the City of San Diego to implement restoration efforts within the MHCP. San Diego, CA.

Wildfire Habitat Management. Principal investigator for California Fire Safe Council responsible for habitat management Projects in areas adjacent to U.S. Forest Service land. Included habitat mapping, sensitive species surveys, GIS, management of work teams (5 to 50 individuals), and preparation of the Biological Assessment for the Bureau of Land Management. Project development included consultation and coordination with private landowners, scientists, San Diego County Fire Authority, Homeowners Associations, USDA Forest Service and BLM. San Diego County, CA.

Wind Energy Project. Year-round monitoring and research contributed to Biological and Environmental Assessments, incorporating focused wildlife surveys throughout 15,000 acres of Bureau of Land Management land in Imperial County. Provided management recommendations for avoidance of impacts to sensitive habitats and species including golden eagles, Peninsular bighorn sheep, burrowing owls, and flat-tailed horned lizards, and post-construction monitoring and mortality surveys. Ocotillo, CA.

Mitigation Land Trust Management. Lead biologist for two Perpetual Land Management Habitat Conservation Plans managed by The Escondido Creek Land Conservancy. The Preserves incorporate 110 acres of riparian wetland, oak woodland, coastal sage scrub, and chaparral habitats; created in compliance with California Environmental Quality Act and Multiple Habitat Conservation Plan requirements, coordinated with third party trustees U.S. Fish & Wildlife Service (USFWS) and California Department of Fish and Wildlife 9CDFW). Escondido and San Marcos, CA.

California Wild Heritage Campaign. Wilderness Society contracted biologist and campaign organizer included biological surveys and mapping of proposed wilderness as well as coordination of volunteers, educational materials, and outreach with National Forest stakeholders. San Diego County, CA.

Endangered Species Biologist. Principal biologist, participated in a long-term research of the California gnatcatcher for Camp Pendleton Marine Base, including monitoring and Critical Habitat Assessment for

USFWS and data collection for 40 + pairs spanning several thousand acres of habitat. Prepared reports on habitat suitability and contributed to critical habitat assessments and recovery planning. Oceanside, CA.

Least Bell's Vireo Endangered Species Recovery Plan. Conducted breeding season nest monitoring and invasive species management as part of the USFWS Species Recovery Plan for the Least Bell's Vireo; included monitoring, banding, and reporting monthly on 30 - 70 nesting pairs while providing reports for Critical Habitat evaluation and population recovery analysis. San Diego County, CA.

Biologist, HELIX Environmental Planning Inc., San Diego, CA. Responsible for terrestrial and aquatic fauna and flora surveys, monitoring, reporting, and research; Habitat Conservation Plans for private and government entities, mitigation and restoration implementation. 2000-2001.

Biologist, Sweetwater Biological, San Diego, CA. Conducted mammalian, ornithological, and herptile surveys and monitoring; mitigation and restoration monitoring, reporting, and management; included contributions to Habitat Conservation Plans for private and government entities. 1994-1996.

RESEARCH

Representative Projects:

Pinniped Natural History, breeding research and impact analysis of human interaction on Harbor seal and sea lion rookeries in San Diego, CA. 2010 – present.

Endangered Species Conservation, South American Project funded by the National Geographic Research Foundation, CITES, Wildlife Conservation Society, The Venezuelan National Council for Scientific and Technological Research (CONICIT), and PROFAUNA of Venezuela; co-lead in multi-year study of the green anaconda; the first of its kind in the wild. Research incorporated radio telemetry, mark and recapture, natural history, and mating system analysis; findings contributed to various documentaries and a conservation and ecotourism program for 175,000 acres of Llanos in Apure State, Venezuela. 1996 – 2002.

Avian Breeding System and Conservation, research included manakin lekking behavior (Tiputini Tropical Research Station, Ecuador), California gnatcatcher, least Bells' vireo nesting success, cowbird parasitism (San Diego county), passerine and *Polybia* nesting associations in flooded wetlands, resource partitioning in 5 species of Ibis. Apure State, Venezuela. 1994 – 1997, 2000 – 2007.

Predator Conservation and Ethology, natural history and conservation research for the jaguar, mountain lion, endangered giant otter, included recommendations for management and co-existence on cattle ranches in the Llanos and Orinoco tributaries. Included observations of genetically distinct giant otter population where previously considered extinct. Apure State, Venezuela. 1996-1997.

Endangered Species Reintroduction Programs, of the Orinoco crocodile, Arrau turtle, Red-footed tortoise, funded by Wildlife conservation society, Venezuelan Profauna. Research in highly remote regions to assess long term species survival post-reintroduction and related influence of local indigenous tribes. Apure State, Venezuela. 1996 – 1998.

Cetacean Bioacoustics, research of the Commerson's dolphin included audiogram data collection on hearing thresholds and related recommendations for conservation management of this species and related genera. Hubbs Research Institute, San Diego, CA. 1991 – 1992.

Primate Research, Study of social and mating behavior dynamics of Pygmy chimpanzees (Bonobos). San Diego Wild Animal Park, Escondido, CA. 1990-1991.

Avian Research Internship, research of waterbird and passerine nesting predation and parasitism; included monitoring, banding, and mapping 250 nest boxes. Genesee Country Nature Center, Mumford, NY. 1987.

Independent Study, conducted undergraduate research on navigation and orientation of long distance avian migrant passerines using a planetarium equipped with an adjustable magnetic field. Principal investigator Dr. Robert Beason. SUNY Geneseo, Geneseo, NY. 1985-1987

NON-PROFIT MANAGEMENT

Executive Director, Wild Zone Conservation League. International wildlife non-profit focused on citizen science, education, research, and community collaboration for wildlife conservation. Long term mission of land acquisition in the U.S. and Central America for preservation and educational field study programs. 2015 - present.

Latin America Assistant Director, World Society for the Protection of Animals. Responsible for Project development and campaign coordination for human-wildlife interface campaigns in Latin America. Included creation and implementation of training workshops, direction of campaigns for species in biodiversity hotspots including watersheds, coral reef, Pacific coastal rainforest and coasts. Coordinated emergency disaster relief with veterinary triage, organizational and material support, rescue training and oiled network response. Boston, MA. 1998-1999.

LABORATORY

Laboratory Technician, Palomar College, San Marcos, CA. Responsible for provisioning, preparation, and maintenance of biology and chemistry laboratories and equipment. 1994.

Laboratory Assistant, Toxicology and Physiology Departments. Included research in environmental toxicology, Muscular Sclerosis, Parkinson's disease. University of Rochester Medical Center, Rochester, NY. 1988 – 1990.

AWARDS / HONORS

- San Diego Sierra Club Silver Cup Conservation Award for Lifetime Achievement, 2017.
- Special Commendation for Contributions to Environmental Conservation, City of San Diego, 2017.
- San Diego County Democrats for Environmental Action Volunteer of the Year, 2017.
- Photo display, San Diego Museum of Natural History's "Best of Nature" Exhibit, 2016.
- San Diego Foundation Vision Fund Environmental Education and Conservation Grant, 2010.
- NOAA Environmental Hero Award, 2000.
- Photo, "TIME Great Images of the 20th Century", TIME Magazine Publications, 2000.
- CONICIT Award for the Novel Researcher, 1998.
- CITES and Profauna Joint Research Grant, 1996.
- National Geographic Film and Research Grant, 1996.

- National Geographic Research and Exploration Award, 1996.
- Wildlife Conservation Society Research Grant, 1996.
- Sierra Club Emily Durbin Leadership in Conservation Award, 1995.
- SDSU Harry Hamber Academic Graduate Scholarship, 1991.
- U.S. National Triathlon Championships, 1989.
- New York State Regents Academic Scholarship, 1983.

CERTIFICATIONS

- U.S. Fish and Wildlife Recovery Permit for the endangered Coastal California gnatcatcher, Least Bell's Vireo, Quino checkerspot butterfly. 1994 – present.
- Acoustic Monitoring of Bats, Field Techniques. Sonobat Workshop, Wildlife Society, 2012.
- Desert Tortoise Council, Survey Techniques Workshop, Certificate of Completion November 2010.
- Flat-tailed Horned Lizard BLM Survey Techniques Workshop, Certificate of Completion, 2010.
- Desert Tortoise Council, Survey Techniques Workshop, Certificate of Completion, 2006.
- USFWS Arroyo Toad Workshop, Certificate of Completion, Camp Pendleton Marine Base, 1999.
- Willow Flycatcher Workshop, SD Natural History Museum, Certificate of Completion, 1995.

VOLUNTEERING

- National Sierra Club Marine Team Committee, 2013- present.
- National Sierra Club Wildlife and Endangered Species Committee, 2010 – 2019.
- San Diego Audubon Society Conservation Committee, 2010 – 2014.
- San Diego Sierra Club (SDSC) Executive Committee, 2008 – 2010.
- SDSC Conservation Committee, 2007 – 2010; 2014 – 2018.
- SDSC Wildlife Committee Chair 2001 – 2008, 2015 – 2018.
- Wildlife Research Institute Scientific Advisory Committee, 2005 – 2008.
- Lakeside Emergency Wildlife Rehabilitation Center, 2000 – 2005.

SOCIETY CONFERENCE PRESENTATIONS

- "From Education to Stewardship: The Cognitive Science of Environmental Communication", Environmental Summit, San Diego, 2019.
- "The Cost of Mismanagement at a Pinniped Rookery and Coastal Urban Wildlife Interface", International Urban Wildlife Conference, San Diego, CA. June 2017.
- "Consorting with Coastal Wildlife: Conservation and Advocacy in the Real World", West Coast Ocean Forum, La Jolla, CA. 2016.
- "Conservation of the Green Anaconda in Venezuela", Annual Conference of the Society for the Study of Ichthyology and Herpetology, La Paz, Baja California, Mexico, 2000.
- "Trends in the International Reptile Pet Trade", Annual Conference for the Humane Society International, Boston, MA, 1998.
- "Bioacoustics and Conservation Implications for the Commerson's Dolphin", Biennial Conference for the Society for Marine Mammalogy, Orlando, FL, 1995.

- "Navigation and Orientation of Long-Distance Migrants: How Bobolinks use Stellar and Magnetic Cues for Migration", Annual Conference for the Society of Behavioral Ecology, Albany, NY, 1987.

WORKSHOPS

- Organized CEQA and NEPA Training Workshops, San Diego, CA. Presented instructional seminar regarding biological impact assessments. 2000, 2007, 2010, 2017.
- Organized the first annual West Coast Marine Environmental Forum, La Jolla. Held seminars on the National Ocean Policy, Ecosystem Based Management, critically endangered cetacean conservation, sustainable fishery science, and coastal wildlife conservation advocacy. 2017.

PROFESSIONAL AFFILIATIONS

- Association of Field Ornithologists
- Citizen Science League
- Marine Mammal Society
- National Association of Biology Teachers
- Society for the Study of Amphibians and Reptiles
- Wildlife Society
- Wildlife and Habitat Conservation Coalition

SELECT PUBLICATIONS

- Owens, R. Y. The Unpleasant Secrets of Clean Solar Energy: The Impacts to Wildlife in the Desert. *The Desert Report,* Dec 2016: pp 1, 8-9.
- Owens, R. Y. 2014. The USDA's Dirty Secret: A Century-Old Wildlife Killing Machine, *The EcoReport* (January). http://www.theecoreport.com/green-blogs/sustainability/conservation/wildzone/the-usdas-dirty-secret-a-century-old-wildlife-killing-machine/
- Owens, R. Y. and Hord. P. L. In revision. *Conservation Biology*. Economic and costs and ecological implications of "joint use" policy management of a Harbor seal rookery in an urban wildlife interface.
- Owens, R. Y. In revision. *Journal of Field Ornithology.* Nesting associations between wasps of the genus *Polybia* and passerine birds of the Venezuelan Llanos.
- Owens, R. Y. 2012. Rebirth of Green: Resolution for 2013. *San Diego Loves Green: The Wild Zone* (December).
- Owens, R. Y. 2012. Coyotes: The Media's Modern Bogeyman. *San Diego Loves Green*: *The Wild Zone* (October).
- Rivas, J.A. and Owens, R.Y. 1999. Teaching conservation effectively: a lesson from life history strategies. *Conservation Biology*, 13 (2): 453-454.
- Rivas, J.A. and Owens, R.Y. 2002. Orinoco crocodile (*Crocodylus intermedius*): Age at First Reproduction. *Herpetological Review*. 33 (3): 203.
- Rivas, J. A., R. Y. and S. A. Aktay, 2001. *Paleosuchus trigonatus* (Schneider's Smooth fronted Caiman): Nesting and hatching. *Herpetological Review*. 32: 251.
- Rivas, J. A., Owens R. Y. and Calle, P.P. 2001. *Eunectes murinus*: Juvenile predation. *Herpetological Review*. 32 (2): 107-108.
- Rivas, J. A. and R. Y. Owens. 2000. *Eunectes murinus* (green anaconda): cannibalism. *Herpetological Review.* 31(1):44-45

- Rivas, J. A., Thorbjarnarson, J. B., Owens, R. Y and M. C, Muñoz, 1999. *Eunectes murinus*: caiman predation. *Herpetological Review*. 30 (2): 101
- Owens, R.Y. Informe técnico al Servicio de Fauna de Venezuela: Regional population assessment of the endangered giant otter (*Pteronura brasiliensis*) in Apure State, Venezuela, and conservation recommendations for a highly endangered species. Dec 1997.
- Unpublished Master's Thesis, "Bioacoustics of the Commerson's Dolphin (*Cephalorhynchus commersonii*) with Recommendations for Applied Conservation" 1993.

Appendix B

Air Quality and Greenhouse Gas Modeling

Construction-Related Emissions of Criteria Air Pollutants and Precursors

	ROG	NOx	PM10 Fugitive Dust	PM10 Exhaust	PM10 Total	PM2.5 Fugitive Dust	PM2.5 Exhaust	PM2.5 Total	units	source
2024 - Summer	3.235	33.116	19.794	1.613	21.407	10.139	1.484	11.623	lb/day	CalEEMod run
2025 - Summer	7.920	14.487	0.152	0.701	0.758	0.040	0.659	0.675	lb/day	CalEEMod run
2024 - Winter	3.228	33.124	19.794	1.613	21.407	10.139	1.484	11.623	lb/day	CalEEMod run
2025 - Winter	7.920	14.496	0.152	0.701	0.758	0.040	0.659	0.675	lb/day	CalEEMod run
Maximum Daily Emissions	7.920	33.124	19.794	1.613	21.407	10.139	1.484	11.623	lb/day	Max calc

	ROG	NOx	PM10 Fugitive Dust	PM10 Exhaust	PM10 Total	PM2.5 Fugitive Dust	PM2.5 Exhaust	PM2.5 Total	units	source
2024 - Annual	0.072	0.678	0.037	0.035	0.072	0.018	0.032	0.050	tons/yr	CalEEMod run
2025 - Annual	0.215	1.316	0.006	0.064	0.069	0.002	0.060	0.062	tons/yr	CalEEMod run
Maximum Annual Emissions	0.215	1.316	0.037	0.064	0.072	0.018	0.060	0.062	tons/yr	Max calc

Construction-Related Emissions of GHGs

Year	GHG	units	source
2024	98	MTCO2e	CalEEMod run
2025	222	MTCO2e	CalEEMod run
Total	319	MTCO2e	sum

Net Change in Operational Emissions of Criteria Air Pollutants, Precursors, and GHGs

Proposed Project

Max Daily Emissions (Existing) (Sources that will change under the Project)

	units:	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	
Source		ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	source
Boilers		0.2	2.3	4.6	0.3	0.9	0.9	Calculated from annual
Flares/Waste Gas Burners		6.4	12.9	79.5	2.7	2.9	2.9	Calculated from annual
Offsets being purchased under existing conditions		0.0	0.0	0.0	0.0	0.0	0.0	Source 5
Total Existing Daily Emissions w/o Worker Commute		**6.6**	**15.2**	**84.1**	**3.0**	**3.8**	**3.8**	Summation

Max Daily Emissions (Project) 2045

	units:	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	
Source		ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	source
Area Source Emissions (new)		0.4	0.0	0.0	0.0	0.0	0.0	worksheet: CalEEMod Output Summaries
Worker Commute Trips (10 additional workers)		0.1	0.1	0.5	0.0	0.1	0.0	worksheet: CalEEMod Output Summaries
BioGeneration Engine (Operating Scenario 1)		97.9	123.8	531.2	71.2	77.5	77.5	Source 3: Table 4-1. [2]
Required ROG/NOx Offsets (Operating Scenario 1)		-97.4	-117.9	0.0	0.0	0.0	0.0	Calculated from annual offsets
Total Project Daily Emissions		**0.9**	**6.0**	**531.6**	**71.2**	**77.6**	**77.5**	Summation

Max Daily Emissions (Net)

	units:	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	
Source		ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	source
Area Source Emissions		0.4	0.0	0.0	0.0	0.0	0.0	Project minus existing
Worker Commute Trips		0.1	0.1	0.5	0.0	0.1	0.0	Project minus existing
BioGeneration Engine/Boilers/Flares		91.2	108.7	447.1	68.2	73.7	73.7	Project minus existing
Required ROG/NOx Offsets (Operating Scenario 1)		-97.4	-117.9	0.0	0.0	0.0	0.0	Project minus existing
Total Project Daily Emissions		**-5.7**	**-9.1**	**447.6**	**68.2**	**73.8**	**73.7**	Summation
SMAQMD Thresholds		**65**	**65**			**80**	**82**	<--PM thresholds apply if BACT/BMPs are applied

Annual Emissions (Existing)

	units:	tons/year	tons/year	tons/year	tons/year	tons/year	tons/year	MTCO2e/yr	
Source		ROG	NO_x	CO	SOx	PM_{10}	$PM_{2.5}$	CO2e	source
Electricity Demand (with solar shares)		0	0	0	0	0	0	11,224	Source 1: 2021 energy use. [5]
Boilers		0.03	0.42	0.84	0.06	0.16	0.16	743	Critiera Air Pollutants: Calculated from energy use and permit emission factors, GHGs: Source 4
Flares/Waste Gas Burners		1.18	2.35	14.50	0.49	0.54	0.54	21	Calculated from energy use and permit emission factors
ROG/NOx Offsets		0.00	0.00	0.00	0.00	0.00	0.00	0	Source 5
Total Existing Annual Emissions		**1.21**	**2.77**	**15.34**	**0.55**	**0.69**	**0.69**	**11,988**	Summation
									Source 4

Annual Emissions (Project) 2025

	units:	tons/year	tons/year	tons/year	tons/year	tons/year	tons/year	MTCO2e/yr	
Source		ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	CO2e	source
Area Source Emissions (new)		[8]						0	worksheet: CalEEMod Output Summaries
Worker Commute Trips (10 additional workers)								16	worksheet: CalEEMod Output Summaries
Electricity Demand (with solar shares)								3,491	Interpolated electricity use and emission factor between existing conditions and 2045
BioGeneration Engine (Operating Scenario 1)								2,835	[6]
Required ROG/NOx Offsets (Operating Scenario 1)									Source 3: Table 4-8. [2]
Total Existing Annual Emissions								**6,343**	Summation

Annual Emissions (Net 2025)

	units:	tons/year	tons/year	tons/year	tons/year	tons/year	tons/year	MTCO2e/yr	
Source								CO2e	source
Area Source Emissions		[8]						0	Project minus existing
Worker Commute Trips								16	Project minus existing
Electricity Demand (with solar shares)								-7,733	Project minus existing
BioGeneration Facility/Boilers/Flares								2,072	Project minus existing
Required ROG/NOx Offsets (Operating Scenario 1)								0	Project minus existing
Total Project Annual Emissions								**-5,645**	Summation
								10000	

Annual Emissions (Project) 2045

	units:	tons/year	tons/year	tons/year	tons/year	tons/year	tons/year	MTCO2e/yr	
Source		ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	CO2e	source
Area Source Emissions (new)		0.07	0.00	0.00	0.00	0.00	0.00	0	worksheet: CalEEMod Output Summaries
Worker Commute Trips (10 additional workers)		0.01	0.01	0.08	0.00	0.00	0.00	16	worksheet: CalEEMod Output Summaries
Electricity Demand (with solar shares)		0	0	0	0	0	0	0	[3]
BioGeneration Engine (Operating Scenario 1)		17.86	22.6	96.94	13	14.1	14.1	4,655	Source 3: Table 4-8. [2,4]
Required ROG/NOx Offsets (Operating Scenario 1)		-17.77	-21.51						Source 3: Table 4-8. [2]
Total Existing Annual Emissions		**0.16**	**1.10**	**97.02**	**13.00**	**14.14**	**14.14**	**4,671**	Summation

Annual Emissions (Net 2045)

	units:	tons/year	tons/year	tons/year	tons/year	tons/year	tons/year	MTCO2e/yr	
Source		ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	CO2e	source
Area Source Emissions		0.07	0.00	0.00	0.00	0.00	0.00	0	Project minus existing
Worker Commute Trips		0.01	0.01	0.08	0.00	0.00	0.00	16	Project minus existing
Electricity Demand (with solar shares)		0.00	0.00	0.00	0.00	0.00	0.00	-11,224	Project minus existing
BioGeneration Facility/Boilers/Flares		16.65	19.83	81.60	12.45	13.45	13.45	3,891	Project minus existing
Required ROG/NOx Offsets (Operating Scenario 1)		-17.77	-21.51	0.00	0.00	0.00	0.00	0	Project minus existing
Total Project Annual Emissions		**-1.05**	**-1.67**	**81.68**	**12.45**	**13.45**	**13.45**	**-7,317**	Summation
SMAQMD Thresholds						**14.60**	**15.00**	**10000**	<--PM thresholds apply if BACT/BMPs are applied

Notes

1 Flares under existing conditions include both enclosed flares and waste gas burners, which are backups to the enclosed flares.
2 Based on Jenbacher JMS 620 engine running at full capacity. (No boilers. No flares. Boiler and flares are to be used on emergency basis only). Operating Scenario 1 is the more conservative option compared to Operating Scenario 2 (100% boilers).
3 SMUD has a 2030 Zero Carbon Plan to achieve zero carbon emissions from their power supply by 2030. (SMUD 2021)
4 Biogenic CO2 emissions are not included.
5 Based on 2021 SMUD standard emission factors interpolated between 2020 published factors and 2030 zero factors.
6 Based on the interpolated digester gas production between existing conditions and maximum capacity anticipated in 2045.
7 These emissions were not required to be evaluated and would likely be less than the maximum criteria pollutant emissions that would occur in 2045.

Sources

1 Regional San (Email from Guillermo Robles to on 1/20/22) Power Summary for Years 2019 to 2021.xlsx
2 Brown and Caldwell (Email from Lynnette Gerbert to Brenda Hom on 2/10/22) PTECalculation.xlsx
3 Brown and Caldwell. 2021 (June 1). Air Permit Application: BioGeneration Facility Project. Prepared for Sacramento Regional County Sanitation District. Sacramento, CA
4 CARB Facility Search Tool: Report for Regional Sanitation Dist (Facility ID: 106) 2019. https://www.arb.ca.gov/app/emsinv/facinfo/facdet.php?co_=34&ab_=SV&facid_=106&dis_=SAC&dbyr=2019&dd=
5 Brown and Caldwell (Email from Adam Ross to Brenda Hom on 2/14/22)

Net Change in Operational Emissions of Criteria Air Pollutants, Precursors, and GHGs

Fuel Cell Alternative

Max Daily Emissions (Existing) (Sources that will change under the Project)

	units:	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	
Source		ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	source
Boilers		0.2	2.3	4.6	0.3	0.9	0.9	Calculated from annual
Flares/Waste Gas Burners		6.4	12.9	79.5	2.7	2.9	2.9	Calculated from annual
Offsets being purchased under existing conditions		0.0	0.0	0.0	0.0	0.0	0.0	Source 5
Total Existing Daily Emissions w/o Worker Commute		**6.6**	**15.2**	**84.1**	**3.0**	**3.8**	**3.8**	Summation

Max Daily Emissions (Project) 2045

	units:	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	
Source		ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	source
Area Source Emissions (new)		0.4	0.0	0.0	0.0	0.0	0.0	worksheet: CalEEMod Output Summaries
Worker Commute Trips (10 additional workers)		0.1	0.1	0.5	0.0	0.1	0.0	worksheet: CalEEMod Output Summaries
Fuel Cell Alternative - Boilers + FC + Flares		1.8	9.1	29.1	0.7	3.0	3.0	Boiler uses NG, 18% DG flared
Required ROG/NOx Offsets (Operating Scenario 1)		-97.4	-117.9	0.0	0.0	0.0	0.0	Calculated from annual offsets for proposed project (no change here)
Total Project Daily Emissions		**-95.1**	**-108.7**	**29.6**	**0.7**	**3.1**	**3.0**	Summation

Max Daily Emissions (Net)

	units:	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	
Source		ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	source
Area Source Emissions		0.4	0.0	0.0	0.0	0.0	0.0	Project minus existing
Worker Commute Trips		0.1	0.1	0.5	0.0	0.1	0.0	Project minus existing
Fuel Cell Alternative - Boilers + FC + Flares		-4.8	-6.0	-54.9	-2.4	-0.8	-0.8	Project minus existing
Required ROG/NOx Offsets (Operating Scenario 1)		-97.4	-117.9	0.0	0.0	0.0	0.0	Project minus existing
Total Project Daily Emissions		**-101.8**	**-123.8**	**-54.5**	**-2.4**	**-0.7**	**-0.8**	Summation
SMAQMD Thresholds		**65**	**65**			**80**	**82**	<--PM thresholds apply if BACT/BMPs are applied

Annual Emissions (Existing)

	units:	tons/year	tons/year	tons/year	tons/year	tons/year	tons/year	MTCO2e/yr	
Source		ROG	NO_x	CO	SOx	PM_{10}	$PM_{2.5}$	CO2e	source
Electricity Demand (with solar shares)		0	0	0	0	0	0	11,224	Source 1: 2021 energy use. [5]
Boilers		0.03	0.42	0.84	0.06	0.16	0.16	0	Critiera Air Pollutants: Calculated from energy use and permit emission factors, GHGs: Source 4
Flares/Waste Gas Burners		1.18	2.35	14.50	0.49	0.54	0.54	21	Calculated from energy use and permit emission factors
ROG/NOx Offsets		0.00	0.00	0.00	0.00	0.00	0.00	0	Source 5
Total Existing Annual Emissions		**1.21**	**2.77**	**15.34**	**0.55**	**0.69**	**0.69**	**11,245**	Summation
									Source 4

Annual Emissions (Project) 2025

	units:	tons/year	tons/year	tons/year	tons/year	tons/year	tons/year	MTCO2e/yr	
Source		ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	CO2e	source
Area Source Emissions (new)		[8]						0	worksheet: CalEEMod Output Summaries
Worker Commute Trips (10 additional workers)								16	worksheet: CalEEMod Output Summaries
Electricity Demand (with solar shares)								9,323	Interpolated electricity use and emission factor between existing conditions and 2045
Fuel Cell Alternative - Boilers + FC + Flares								3,496	[6]
Required ROG/NOx Offsets (Operating Scenario 1)									Source 3: Table 4-8. [2]
Total Existing Annual Emissions								**12,835**	Summation

0.13

Annual Emissions (Net 2025)

	units:	tons/year	tons/year	tons/year	tons/year	tons/year	tons/year	MTCO2e/yr	
Source								CO2e	source
Area Source Emissions		[8]						0	Project minus existing
Worker Commute Trips								16	Project minus existing
Electricity Demand (with solar shares)								-1,901	Project minus existing
Fuel Cell Alternative - Boilers + FC + Flares								3,475	Project minus existing
Required ROG/NOx Offsets (Operating Scenario 1)								0	Project minus existing
Total Project Annual Emissions								**1,590**	Summation
								10000	

Annual Emissions (Project) 2045

	units:	tons/year	tons/year	tons/year	tons/year	tons/year	tons/year	MTCO2e/yr	
Source		ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	CO2e	source
Area Source Emissions (new)		0.07	0.00	0.00	0.00	0.00	0.00	0	worksheet: CalEEMod Output Summaries
Worker Commute Trips (10 additional workers)		0.01	0.01	0.08	0.00	0.00	0.00	0	worksheet: CalEEMod Output Summaries
Electricity Demand (with solar shares)		0	0	0	0	0	0	0	[3]
Fuel Cell Alternative - Boilers + FC + Flares		0.2	0.5	2.8	0.1	0.1	0.1	3,496	Source 3: Table 4-8. [2,4]
Required ROG/NOx Offsets (Operating Scenario 1)		-17.77	-21.51						Calculated from annual offsets for proposed project (no change h
Total Existing Annual Emissions		**-17.48**	**-20.99**	**2.88**	**0.10**	**0.13**	**0.13**	**3,496**	Summation

(0.65)

Annual Emissions (Net 2045)

	units:	tons/year	tons/year	tons/year	tons/year	tons/year	tons/year	MTCO2e/yr	
Source		ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	CO2e	source
Area Source Emissions		0.07	0.00	0.00	0.00	0.00	0.00	0	Project minus existing
Worker Commute Trips		0.01	0.01	0.08	0.00	0.00	0.00	0	Project minus existing
Electricity Demand (with solar shares)		0.00	0.00	0.00	0.00	0.00	0.00	-11,224	Project minus existing
Fuel Cell Alternative - Boilers + FC + Flares		-0.99	-2.26	-12.54	-0.45	-0.57	-0.57	3,475	Project minus existing
Required ROG/NOx Offsets (Operating Scenario 1)		-17.77	-21.51	0.00	0.00	0.00	0.00	0	Project minus existing
Total Project Annual Emissions		**-18.69**	**-23.76**	**-12.46**	**-0.45**	**-0.57**	**-0.56**	**-7,749**	Summation
SMAQMD Thresholds						**14.60**	**15.00**	**10000**	<--PM thresholds apply if BACT/BMPs are applied

Notes

1 Flares under existing conditions include both enclosed flares and waste gas burners, which are backups to the enclosed flares.
2 Based on Jenbacher JMS 620 engine running at full capacity. (No boilers. No flares. Boiler and flares are to be used on emergency basis only). Operating Scenario 1 is the more conservative option compared to Operating Scenario 2 (100% boilers).
3 SMUD has a 2030 Zero Carbon Plan to achieve zero carbon emissions from their power supply by 2030. (SMUD 2021)
4 Biogenic CO2 emissions are not included.
5 Based on 2021 SMUD standard emission factors interpolated between 2020 published factors and 2030 zero factors.
6 Based on the interpolated digester gas production between existing conditions and maximum capacity anticipated in 2045.
7 These emissions were not required to be evaluated and would likely be less than the maximum criteria pollutant emissions that would occur in 2045.

Sources

1 Regional San (Email from Guillermo Robles to on 1/20/22) Power Summary for Years 2019 to 2021.xlsx
2 Brown and Caldwell (Email from Lynnette Gerbert to Brenda Hom on 2/10/22) PTECalculation.xlsx
3 Brown and Caldwell. 2021 (June 1). Air Permit Application: BioGeneration Facility Project. Prepared for Sacramento Regional County Sanitation District. Sacramento, CA
4 CARB Facility Search Tool: Report for Regional Sanitation Dist (Facility ID: 106) 2019. https://www.arb.ca.gov/app/emsinv/facinfo/facdet.php?co_=34&ab_=SV&facid_=106&dis_=SAC&dbyr=2019&dd=
5 Brown and Caldwell (Email from Adam Ross to Brenda Hom on 2/14/22)

Net Change in Operational Energy Use

kscf/therm NG 0.1

kscf/therm DG 0.1642

Proposed Project

Existing Energy Use per Year (Sources that will change under the Project)

Source	On-Site Electricity Production (kWh)	Grid Electricity Use (kWh)	Total Electricity Use (kWh)	Solar Shares Commitment (kWh) [1]	Non-Solarshares Grid Use (kWh)	Biogas Use (Therm)	Natural Gas Use (Therm) [4]	Total Therms
SMUD Electricity Demand (with solar shares) [Source 1]		0	102,771,333	102,771,333	25,971,294	76,800,039		
Boilers (Source 3)						89,580	139,685	229,265
Flares [2]						784,158	0	784,158
Total Existing Energy Use w/o Worker Commute		**-**	**102,771,333**	**102,771,333**	**25,971,294**	**76,800,039**	**873,738**	**139,685**	1,013,423
Digester Gas sent to SMUD							3,482,693	
Total DG production [6]							4,356,431	

Project Energy Use per Year (2025)

Source	On-Site Electricity Production (kWh)	Grid Electricity Use (kWh)	Total Electricity Use (kWh)	Solar Shares Commitment (kWh) [1]	Non-Solarshares Grid Use (kWh)	Biogas Use (Therm) [7]	Natural Gas Use (Therm) [4]	Total Therms	Gasoline (Gal)
SMUD Electricity Demand (with solar shares)	51,318,857	68,972,476	120,291,333	25,971,294	43,001,182				
BioGeneration Engine (Source 2: Tables 3-1, 4-1) [3,4]						4,796,155	532,906	5,329,061	
Boilers/Flares (Source 2: Tables 3-1, 4-1) [3,4]						0	0	0	
Worker Commute Trips (10 additional workers)									5,457
Total Project Energy Use	**51,318,857**	**68,972,476**	**120,291,333**	**25,971,294**	**43,001,182**	**4,796,155**	**532,906**	**5,329,061**	-
Total DG production [3]						4,796,155			

Net Energy Use per Year (2025)

Source	On-Site Electricity Production (kWh)	Grid Electricity Use (kWh)	Total Electricity Use (kWh)	Solar Shares Commitment (kWh) [1]	Non-Solarshares Grid Use (kWh)	Biogas Use (Therm)	Natural Gas Use (Therm) [4]	Total Therms	Gasoline (Gal)
Electricity Demand (with solar shares)	51,318,857	(33,798,857)	17,520,000	-	(33,798,857)				-
BioGeneration Engine/Boilers/Flares						3,922,417	393,221	4,315,638	-
Worker Commute Trips									5,457
Total Net Energy Use	**51,318,857**	**(33,798,857)**	**17,520,000**	-	**(33,798,857)**	**3,922,417**	**393,221**	**4,315,638**	**5,457**
Total Net DG production						439,724			

Project Energy Use per Year (2045)

Source	On-Site Electricity Production (kWh)	Grid Electricity Use (kWh)	Total Electricity Use (kWh)	Solar Shares Commitment (kWh) [1]	Non-Solarshares Grid Use (kWh)	Biogas Use (Therm)	Natural Gas Use (Therm) [4]	Total Therms	Gasoline (Gal)
SMUD Electricity Demand (with solar shares)	84,254,200	36,037,133	120,291,333	25,971,294	10,065,839				
BioGeneration Engine (Source 2: Tables 3-1, 4-1) [3,4]						7,874,224	874,914	8,749,138	
Boilers/Flares (Source 2: Tables 3-1, 4-1) [3,4]						0	0	0	
Worker Commute Trips (10 additional workers)									5,457
Total Project Energy Use	**84,254,200**	**36,037,133**	**120,291,333**	**25,971,294**	**10,065,839**	**7,874,224**	**874,914**	**8,749,138**	-
Total DG production [3]						7,874,224			

Net Energy Use per Year (2045)

Source	On-Site Electricity Production (kWh)	Grid Electricity Use (kWh)	Total Electricity Use (kWh)	Solar Shares Commitment (kWh) [1]	Non-Solarshares Grid Use (kWh)	Biogas Use (Therm)	Natural Gas Use (Therm) [4]	Total Therms	Gasoline (Gal)
Electricity Demand (with solar shares)	84,254,200	-66,734,200	17,520,000	0	-66,734,200				-
BioGeneration Engine/Boilers/Flares						7,000,487	735,229	7,735,715	-
Worker Commute Trips									5,457
Total Net Energy Use	**84,254,200**	**-66,734,200**	**17,520,000**	**0**	**-66,734,200**	**7,000,487**	**735,229**	**7,735,715**	**5,457**
Total Net DG production						3,517,794			

Notes

1 This is a subset of total electricity use.
2 Flares are assumed to be 18% of total gas production
3 2460 scfm (average annual production 2045) (Source 2) 0.1642 kscf/therm
4 Operating Scenario 1 (90% biogas/10% natural gas). This is worst case for GHGs, as natural gas usage will only be used when the engines are not in operation and the standby boilers are used.
5 1362 scfm generated in 2021 (Phone conversation with Adam Ross and Brenda Hom on 2/22/22)
6 Conservatively assumes existing gas production of 1,400 scfm. (max is 1,800 scfm)
7 Interpolated digester gas production between existing conditions and maximum capacity anticipated in 2045.

Sources

1 Regional San (Email from Guillermo Robles to Adam Ross on 1/20/22) Power Summary for Years 2019 to 2021.xlsx (2021 totals)
2 Brown and Caldwell. 2021 (June 1). Air Permit Application: BioGeneration Facility Project. Prepared for Sacramento Regional County Sanitation District. Sacramento, CA
3 Regional San. 2021. Quarterly Boilers Natural Gas and Digester Gas Usage, KSCF/quarter (Email from Adam Ross to Brenda Hom on 2/14/22)

Net Change in Operational Energy Use

kscf/therm NG 0.1

kscf/therm DG 0.1642

Fuel Cell Alternative

Existing Energy Use per Year (Sources that will change under the Project)

Source	On-Site Electricity Production (kWh)	Grid Electricity Use (kWh)	Total Electricity Use (kWh)	Solar Shares Commitment (kWh) [1]	Non-Solarshares Grid Use (kWh)	Biogas Use (Therm)	Natural Gas Use (Therm) [4]	Total Therms
SMUD Electricity Demand (with solar shares) [Source 1]		0	102,771,333	102,771,333	25,971,294	76,800,039		
Boilers (Source 3)						89,580	139,685	229,265
Flares [2]						784,158	0	784,158
Total Existing Energy Use w/o Worker Commute		**-**	**102,771,333**	**102,771,333**	**25,971,294**	**76,800,039**	**873,738**	**139,685**	1,013,423
Digester Gas sent to SMUD						3,482,693		
Total DG production [6]						4,356,431		

Project Energy Use per Year (2025)

Source	On-Site Electricity Production (kWh)	Grid Electricity Use (kWh)	Total Electricity Use (kWh)	Solar Shares Commitment (kWh) [1]	Non-Solarshares Grid Use (kWh)	Biogas Use (Therm) [7]	Natural Gas Use (Therm) [4]	Total Therms	Gasoline (Gal)
SMUD Electricity Demand (with solar shares) + Downtime Demand		140,796,726	140,796,726	25,971,294	114,825,432				
Supplemental Boiler						1,807,596	200,844	2,008,440	
Fuel Cell						2,125,251	236,139	2,361,390	
Flares						863,308	0	863307.8678	
Worker Commute Trips (10 additional workers)									5,457
Total Project Energy Use		**-**	**140,796,726**	**140,796,726**	**25,971,294**	**114,825,432**	**4,796,155**	**436,983**	**4,369,830**	-
Total DG production [3]						4,796,155			

Net Energy Use per Year (2025)

Source	On-Site Electricity Production (kWh)	Grid Electricity Use (kWh)	Total Electricity Use (kWh)	Solar Shares Commitment (kWh) [1]	Non-Solarshares Grid Use (kWh)	Biogas Use (Therm)	Natural Gas Use (Therm) [4]	Total Therms	Gasoline (Gal)
SMUD Electricity Demand (with solar shares) + Downtime Demand	-	38,025,393	38,025,393	-	38,025,393				-
Boilers + Fuel Cell Fuel Use						3,922,417	297,298	4,219,715	-
Worker Commute Trips									5,457
Total Net Energy Use	-	**38,025,393**	**38,025,393**	-	**38,025,393**	**3,922,417**	**297,298**	**4,219,715**	**5,457**
Total Net DG production						439,724			

Project Energy Use per Year (2045)

Source	On-Site Electricity Production (kWh)	Grid Electricity Use (kWh)	Total Electricity Use (kWh)	Solar Shares Commitment (kWh) [1]	Non-Solarshares Grid Use (kWh)	Biogas Use (Therm)	Natural Gas Use (Therm) [4]	Total Therms	Gasoline (Gal)
SMUD Electricity Demand (with solar shares) + Downtime Demand		140,796,726	140,796,726	25,971,294	114,825,432				
Supplemental Boiler						7,874,224	874,914	8,749,138	
Fuel Cell									
Boilers/Flares (Source 2: Tables 3-1, 4-1) [3,4]						0	0	0	
Worker Commute Trips (10 additional workers)									5,457
Total Project Energy Use		**-**	**140,796,726**	**140,796,726**	**25,971,294**	**114,825,432**	**7,874,224**	**874,914**	**8,749,138**	-
Total DG production [3]						7,874,224			

Net Energy Use per Year (2045)

Source	On-Site Electricity Production (kWh)	Grid Electricity Use (kWh)	Total Electricity Use (kWh)	Solar Shares Commitment (kWh) [1]	Non-Solarshares Grid Use (kWh)	Biogas Use (Therm)	Natural Gas Use (Therm) [4]	Total Therms	Gasoline (Gal)
SMUD Electricity Demand (with solar shares) + Downtime Demand	0	38,025,393	38,025,393	0	38,025,393				-
Boilers + Fuel Cell Fuel Use						7,000,487	735,229	7,735,715	-
Worker Commute Trips									5,457
Total Net Energy Use	**0**	**38,025,393**	**38,025,393**	**0**	**38,025,393**	**7,000,487**	**735,229**	**7,735,715**	**5,457**
Total Net DG production						3,517,794			

Notes

1 This is a subset of total electricity use.

2 Flares are assumed to be 18% of total gas production

3 2460 scfm (average annual production 2045) (Source 2) 0.1642 kscf/therm

4 Operating Scenario 1 (90% biogas/10% natural gas). This is worst case for GHGs, as natural gas usage will only be used when the engines are not in operation and the standby boilers are used.

5 1362 scfm generated in 2021 (Phone conversation with Adam Ross and Brenda Hom on 2/22/22)

6 Conservatively assumes existing gas production of 1,400 scfm. (max is 1,800 scfm)

7 Interpolated digester gas production between existing conditions and maximum capacity anticipated in 2045.

Sources

1 Regional San (Email from Guillermo Robles to Adam Ross on 1/20/22) Power Summary for Years 2019 to 2021.xlsx (2021 totals)

2 Brown and Caldwell. 2021 (June 1). Air Permit Application: BioGeneration Facility Project. Prepared for Sacramento Regional County Sanitation District. Sacramento, CA

3 Regional San. 2021. Quarterly Boilers Natural Gas and Digester Gas Usage, KSCF/quarter (Email from Adam Ross to Brenda Hom on 2/14/22)

Fuel Use (MMscf/hr) = Fuel Use (MMBtu/hr) / HV (btu/scf)

7.5	MMBTU/hr gap to fill		65,700
620	DG HV		575532000
0.0121	MMscf/hr from DG	125.0959069	hrs/yr =
12.097	kscf/hr from DG	1,095,840	8760
645,344	therms DG/year		

7.5	MMBTU/hr gap to fill		75
1000	NG HV		657000
0.0075	MMscf/hr from NG		
7.5	kscf/hr from NG	65700	
657,000	therms NG/year	6287490	

7.7775	MMSCF/hr
68130.9	MMSCF/yr
681,309	therms/yr

Fuel Cell Alternative - Fuel Cell Energy to Equal BioGen Energy Production

Model	FCE 1500	FCE 3000	Bloom ES5	
Net Output (kw)	1,400	2,800	300	specs
Hours/day	24	24	24	assumption
Uptime	63%	63%	63%	applicant
kwh/day	21,168	42,336	4,536	kw * hrs/day * uptime%
kwh/year	7,726,320	15,452,640	1,655,640	kw * hrs/day * uptime% * days/yr
# of plants to create the same energy production	6.6	3.3	31.0	
if no downtime				
kwh/year if no downtime	12,264,000	24,528,000	2,628,000	
# of plants to create the same energy production if there is no downtime	4.2	2.1	19.5	
onsite kwh production expected with biogas facility (project)	51,318,857	51,318,857	51,318,857	Demand from proposed project biogen

Fuel Cell Alternative - Supplemental Boilers

7.5	MMBTU/hr gap to fill
24	hrs/day
180	MMBTU/day gap to fill
8760	hrs/yr
65700	MMBTU/yr gap to fill

Existing Boiler Emission Factors (lb/MMBTU)		
	Digester Gas	Natural Gas
ROG	0.003	0.003
NOX	0.0364	0.0364
SOX	0.0126	0.0006
PM10	0.0137	0.0137
CO	0.0731	0.0731
CO2e	0.581	117.3

Pounds Per Day		
	Digester Gas	Natural Gas
ROG	0.5	0.5
NOX	6.6	6.6
SOX	2.3	0.1
PM10	2.5	2.5
CO	13.2	13.2

TPY		
	Digester Gas	Natural Gas
ROG	0.1	0.1
NOX	1.2	1.2
SOX	0.4	0.0
PM10	0.5	0.5
CO	2.4	2.4

MT/Y		
CO2e	17.3	3495.7

Fuel Cell Alternative - Flares

863,308	Therms to flare assuming 18% flared
0.1642	kscf/therm DG
141,758	kscf
0.619	Million Btu/Thousand Standard Cubic Feet
87,890,122	MMBTU/flared

Flare Emission Factors (lb/MMBTU)	
	Digester Gas
ROG	0.03
NOX	0.06
SOX	0.0126
PM10	0.0137
PM2.5	0.0137
CO	0.37
CO2e (non-biogenic)	0.581

Pounds Per Day	
	Digester Gas
ROG	1.3
NOX	2.6
SOX	0.5
PM10	0.6
CO	16.0

TPY	
	Digester Gas
ROG	0.2
NOX	0.5
SOX	0.1
PM10	0.1
CO	2.9

MT/Y	
CO2e (non-biogenic)	25.1

	Pounds Per Day						MTY
SUM	ROG	NO_x	CO	SOx	PM_{10}	PM_{25}	CO2e
Boiler	0.5	6.6	13.2	0.1	2.5	2.5	3,496
Flare	1.3	2.6	16.0	0.5	0.5	0.5	25
lbs/day	1.8	9.1	29.1	0.7	3.0	3.0	
MT/y							3,521

assume boiler uses NG (no DG). Flare % is same as existing (18%)

Natural Gas Emissions Factors Conversion				
	kg/MMBtu [1]	g/MMBtu [1]	MT/MMBtu	MT/therm
CO2	53.1		0.0531	0.00531
CH4		4.7	0.0000047	4.70E-07
N2O		0.1	0.0000001	1.00E-08
CO2e				**0.005321**

1. Source: The Climate Registry 2021 Default Emission Factors (https://www.theclimateregistry.org/wp-content/uploads/2021/05/2021-Default-Emission-Factor-Document.pdf)

Notes: 1 MT = 1,000 kg; 1 MT = 1,000,000 g; 1 therm = 0.1 MMBtu

SMUD Electricity Emission Rates

		2020	2021	2025	2030	
	Percent GHG Free	lb CO2/MWh	lb CO2/MWh	lb CO2/MWh	lb CO2/MWh	
SMUD General Mix	61%	358	322.2	179	0	
Greenergy Partner Plus	99%	24	21.6	12	0	
Greenergy Partner	NA	944	849.6	472	0	<-- 100% unspecified source
Solarshares	100%	0	0	0	0	

Source: CEC 2020 SMUD Power Content Label

Notes: Emission factors between 2020 and 2030 are interpolated

Existing Boiler Emission Factors (lb/MMBTU)

	Digester Gas	Natural Gas
ROG	0.003	0.003
NOX	0.0364	0.0364
SOX	0.0126	0.0006
PM10	0.0137	0.0137
CO	0.0731	0.0731

Source: SMAQMD 2019 Boiler Permit

Flare Emission Factors (lb/MMBTU)

	Digester Gas	
ROG	0.03	
NOX	0.06	
SOX	0.0126	
PM10	0.0137	
PM2.5	0.0137	
CO	0.37	
CO2e (non-biogenic)	0.581	<-- Based on AR4 GWP factors via EPA's Mandatory Reporting Rule emission factors

Source: SMAQMD 2013 Flare Permit

Conversions

Therms per MMBTU 10.0023877

GWP Factors	Value	Comment				
CO2	1	Carbon Dioxide				
CH4	25	Methane				
N2O	298	Nitrous Oxide				
Source	**CO2 GWP**	**CH4 GWP**	**N2O GWP**			
IPCC Fourth Assessment Report	1	25	298	https://www.ipcc.ch/site/assets/uploads/2018/02/ar4-wg1-ts-1.pdf		

Trips and VMT Associated with Project Operations

Employees	Trips/ employee/ day	Total Worker Trips/day	Worker Trip Length (miles)	Total Worker Trip Length (miles)	Fuel Efficiency (miles/gallon)	gallons of gasoline/day	Days/year	gallons of gasoline/year
10	4	40	10.00	400	26.75	15	365	5,457

Construction-Related Emissions of Criteria Air Pollutants and Precursors

	ROG	NOx	PM10 Fugitive Dust	PM10 Exhaust	PM10 Total	PM2.5 Fugitive Dust	PM2.5 Exhaust	PM2.5 Total	units	source
2024 - Summer	3.238	33.117	18.203	1.614	19.817	9.967	1.484	11.451	lb/day	CalEEMod run
2024 - Winter	3.232	33.125	18.203	1.614	19.817	9.967	1.484	11.451	lb/day	CalEEMod run
2025 - Summer	7.920	14.557	0.152	0.700	0.852	0.040	0.659	0.699	lb/day	CalEEMod run
2025 - Winter	7.920	14.561	0.152	0.700	0.758	0.040	0.659	0.699	lb/day	CalEEMod run
Maximum Daily Emissior	7.920	33.125	18.203	1.614	19.817	9.967	1.484	11.451	lb/day	Max calc

Construction-Related Emissions of GHGs

Year	GHG	units	source
2024	246.58	MTCO2e	CalEEMod run
2025	73.75	MTCO2e	CalEEMod run
Total	320.33	MTCO2e	sum

Operational Emissions of Criteria Air Pollutants and Precursors

	ROG	NOx	PM10 Fugitive Dust	PM10 Exhaust	PM10 Total	PM2.5 Fugitive Dust	PM2.5 Exhaust	PM2.5 Total	CO2e	units	source
Vehicle Travel (mobile sources)											
Summer	0.0269	0.0902	0.1004	0.00079	0.1012	0.0268	0.00073	0.0275	112.7061	lb/day	CalEEMod run
Winter	0.0204	0.097	0.1004	0.00079	0.1012	0.0268	0.00074	0.0275	101.9409	lb/day	CalEEMod run
Maximum Daily Emiss	0.0269	0.097	0.1004	0.00079	0.1012	0.0268	0.00074	0.0275	112.7061	lb/day	Max calc
Annual	0.00392	0.0171	0.0177	0.00014	0.0178	0.000473	0.00013	0.0006	see below	tons/year	CalEEMod run

Operational Emissions of GHGs

	GHG	units	source
Vehicle Travel (mobile sources)			
Annual	55.4333	MTCO2e	CalEEMod run

Appendix C

Special-Status Species

Special-Status Plant Species Known to Occur in the Vicinity of the Project Area and Potential for Occurrence on the Project Area

Species	Listing Status[1] Federal	Listing Status[1] State	CRPR[1]	SSHCP	Habitat	Potential for Occurrence
Ferris' milk-vetch *Astragalus tener* var. *ferrisiae*	–	–	1B.1	–	Meadows and seeps, valley and foothill grassland. Subalkaline flats on overflow land in the Central Valley; usually seen in dry, adobe soil. 16–250 feet in elevation. Blooms April–May.	*Not expected to occur*. The project area does not provide habitat (i.e., subalkaline flats or dry adobe soils) suitable for this species.
Watershield *Brasenia schreberi*	–	–	2B.3	–	Freshwater marshes and swamps. Aquatic from water bodies both natural and artificial in California. 98–7,220 feet in elevation. Blooms June–September.	*Not expected to occur*. The project area does not provide wetland habitat suitable for this species.
Bristly sedge *Carex comosa*	–	–	2B.1	–	Marshes and swamps, coastal prairie, valley and foothill grassland. Lake margins, wet places; site below sea level is on a Delta island. 16–5,315 feet in elevation. Blooms May–September.	*Not expected to occur*. The project area does not provide wetland habitat suitable for this species.
Pappose tarplant *Centromadia parryi* ssp. *parryi*	–	–	1B.2	–	Vernally mesic, often alkaline sites. 7–1,380 feet in elevation. Blooms May–November.	*Not expected to occur*. The project area does not provide vernally mesic habitat suitable for this species.
Bolander's water-hemlock *Cicuta maculata* var. *bolanderi*	–	–	2B.1	–	Marshes and swamps, fresh or brackish water. 0–660 feet in elevation. Blooms July–September.	*Not expected to occur*. The project area does not provide wetland habitat suitable for this species.
Peruvian dodder *Cuscuta obtusiflora* var. *glandulosa*	–	–	2B.2	–	Freshwater marsh. 49–920 feet in elevation. Blooms July–October.	*Not expected to occur*. The project area does not provide wetland habitat suitable for this species.
Dwarf downingia *Downingia pusilla*	–	–	2B.2	Covered	Vernal lake and pool margins with a variety of associates. In several types of vernal pools. 3–1,601 feet in elevation. Blooms March–May.	*Not expected to occur*. The project area does not provide wetland habitat suitable for this species.
Boggs Lake hedge-hyssop *Gratiola heterosepala*	–	SE	1B.2	Covered	Clay soils; usually in vernal pools, sometimes on lake margins. 30–7,795 feet in elevation. Blooms April–August.	*Not expected to occur*. The project area does not provide wetland habitat suitable for this species.
Woolly rose-mallow *Hibiscus lasiocarpos* var. *occidentalis*	–	–	1B.2	–	Marshes and swamps (freshwater). Moist, freshwater-soaked riverbanks and low peat islands in sloughs; can also occur on riprap and levees. In California, known from the Delta watershed. 0–5,010 feet in elevation. Blooms June–September.	*Not expected to occur*. The project area does not provide wetland habitat suitable for this species.
Ahart's dwarf rush *Juncus leiospermus* var. *ahartii*	–	–	1B.2	Covered	Valley and foothill grassland. Restricted to the edges of vernal pools in grassland. 95–330 feet in elevation. Blooms March–May.	*Not expected to occur*. The project area does not provide vernal pool edge habitat suitable for this species.

Species	Listing Status[1] Federal	Listing Status[1] State	CRPR[1]	SSHCP	Habitat	Potential for Occurrence
Alkali-sink goldfields *Lasthenia chrysantha*	–	–	1B.1	–	Vernal pool Vernal pools. Alkaline. 0–660 feet in elevation. Blooms February–June.	*Not expected to occur*. The project area does not provide vernal pool habitat suitable for this species.
Delta tule pea *Lathyrus jepsonii* var. *jepsonii*	–	–	1B.2	–	Often found with *Typha* spp., *Aster lentus*, *Rosa californica*, *Juncus* spp., *Scirpus* spp., etc. Usually on marsh and slough edges. 0–16 feet in elevation. Blooms May–July (August), (September).	*Not expected to occur*. The project area does not provide wetland habitat suitable for this species.
Legenere *Legenere limosa*	–	–	1B.1	Covered	In beds of vernal pools. 3–2,890 feet in elevation. Blooms April–June.	*Not expected to occur*. The project area does not provide vernal pool or wetland habitat suitable for this species.
Heckard's pepper-grass *Lepidium latipes* var. *heckardii*	–	–	1B.2	–	Grassland, and sometimes vernal pool edges. Alkaline soils. 3–100 feet in elevation. Blooms March–May.	*Not expected to occur*. The project area does not provide grassland or vernal pool habitat suitable for this species.
Mason's lilaeopsis *Lilaeopsis masonii*	–	SR	1B.1	–	Freshwater and brackish marshes, riparian scrub. Tidal zones, in muddy or silty soil formed through river deposition or riverbank erosion. 0–33 feet in elevation. Blooms April–November.	*Not expected to occur*. The project area does not provide wetland habitat suitable for this species.
Delta mudwort *Limosella australis*	–	–	2B.1	–	Usually on mud banks of the Delta in marshy or scrubby riparian associations; often with *Lilaeopsis masonii*. 0–16 feet in elevation. Blooms May–August.	*Not expected to occur*. The project area does not provide wetland habitat suitable for this species.
Pincushion navarretia *Navarretia myersii* ssp. *myersii*	–	–	1B.1	Covered	Vernal pools, wetland. Clay soils within non-native grassland. 145–330 feet in elevation. Blooms April–May.	*Not expected to occur*. The project area does not contain vernal pool or wetland habitat suitable for this species.
Slender Orcutt grass *Orcuttia tenuis*	FT	SE	1B.1	Covered	Vernal pools, wetland. Often in gravelly substrate. 80–5,760 feet in elevation. Blooms May–September (October).	*Not expected to occur*. The project area does not contain vernal pool habitat suitable for this species.
Sacramento Orcutt grass *Orcuttia viscida*	FE	SE	1B.1	Covered	Vernal pools, wetland. 49–280 feet in elevation. Blooms April–July (September).	*Not expected to occur*. The project area does not contain vernal pool habitat suitable for this species.
Sanford's arrowhead *Sagittaria sanfordii*	–	–	1B.2	Covered	In standing or slow-moving freshwater ponds, marshes, and ditches. 0–2,135 feet in elevation. Blooms May–October (November).	*Not expected to occur*. The project area does not contain aquatic habitat suitable for this species, which is known only from tidally influenced waterways.
Marsh skullcap *Scutellaria galericulata*	–	–	2B.2	–	Swamps and wet places. 0–6,400 feet in elevation. Blooms June–September.	*Not expected to occur*. The project area does not contain mesic habitat suitable for this species.
Side-flowering skullcap *Scutellaria lateriflora*	–	–	2B.2	–	Wet meadows and marshes. In the Delta, often found on logs. 0–1,640 feet in elevation. Blooms July–September.	*Not expected to occur*. The project area does not contain mesic habitat suitable for this species.

Species	Listing Status[1] Federal	Listing Status[1] State	CRPR[1]	SSHCP	Habitat	Potential for Occurrence
Suisun Marsh aster *Symphyotrichum lentum*	–	–	1B.2	–	Marshes and swamps (brackish and freshwater). Most often seen along sloughs with *Phragmites* spp., *Scirpus* spp., blackberry, *Typha* spp., etc. 0–100 feet in elevation. Blooms (April), May–November.	*Not expected to occur*. The project area does not contain aquatic habitat suitable for this species.
Saline clover *Trifolium hydrophilum*	–	–	1B.2	–	Marshes and swamps, valley and foothill grassland, vernal pools. Mesic, alkaline sites. 0–985 feet in elevation. Blooms April–June.	*Not expected to occur*. The project area does not contain mesic habitat suitable for this species.

Notes: CRPR = California Rare Plant Rank; CEQA = California Environmental Quality Act; ESA = Endangered Species Act; SSHCP = South Sacramento Habitat Conservation Plan

[1] Legal Status Definitions

Federal:

FE Federally Listed as Endangered (legally protected by ESA)

FT Federally Listed as Threatened (legally protected by ESA)

State:

SE State Listed as Endangered (legally protected by CESA)

SR State Listed as Rare (legally protected by CNPPA)

California Rare Plant Ranks (CRPR):

1B Plant species considered rare or endangered in California and elsewhere (protected under CEQA, but not legally protected under ESA or CESA).

2B Plant species considered rare or endangered in California but more common elsewhere (protected under CEQA, but not legally protected under ESA or CESA).

CRPR Threat Ranks:

0.1 Seriously threatened in California (over 80% of occurrences threatened; high degree and immediacy of threat)

0.2 Moderately threatened in California (20-80% occurrences threatened; moderate degree and immediacy of threat)

0.3 Not very endangered in California

Sources: CNDDB 2021; CNPS 2021

Special-Status Wildlife Species Known to Occur in the Vicinity of the Project Area and Potential for Occurrence on the Project Area

Species	Listing Status[1] Federal	Listing Status[1] State	SSHCP	Habitat	Potential for Occurrence
Amphibians					
California tiger salamander (Central Valley population) *Ambystoma californiense*	FT	ST	Covered	Need underground refuges, especially ground squirrel burrows, and vernal pools or other seasonal water sources for breeding.	*Not expected to occur*. The project area does not contain burrows or aquatic habitat suitable for this species.
Western spadefoot *Spea hammondii*	—	SSC	Covered	Occurs primarily in grassland habitat but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	*Not expected to occur*. The project area does not support aquatic habitat suitable for this species.
Birds					
Bank swallow *Riparia riparia*	—	ST	—	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	*Not expected to occur*. The project area does not contain riparian habitat or vertical banks/cliffs suitable for this species.
Burrowing owl *Athene cunicularia*	—	SSC	Covered	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	***May occur.*** Species known to nest in the Bufferlands. Vegetation height in the project area may discourage use by owls. Limited California ground squirrel burrows as site has been graded historically for staging and construction storage.
California black rail *Laterallus jamaicensis coturniculus*	—	ST, FP	—	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	*Not expected to occur*. The project area does not contain aquatic habitat suitable for this species.
Cooper's hawk *Accipiter cooperi*	—	—	Covered	Woodland, primarily of open, interrupted, or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river floodplains; also, live oaks.	***May occur.*** Not expected to occur in the project area but could occur in adjacent Bufferlands. Not likely to nest in the project area but could nest in adjacent riparian habitat along Laguna Creek north of the project area.
Ferruginous hawk *Buteo regalis*	—	—	Covered	Open grasslands, sagebrush flats, desert scrub, low foothills, and fringes of pinyon and juniper habitats. Eats mostly lagomorphs, ground squirrels, and mice. Population trends may follow lagomorph population cycles.	*Not expected to occur*. Although the adjacent Bufferlands may provide suitable wintering habitat, the project area does not provide habitat suitable for this species due to limited prey availability and ongoing disturbance.
Golden eagle *Aquila chrysaetos*	—	FP	—	Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	*Not expected to occur*. Although the Bufferlands may provide suitable foraging habitat, there is no suitable nesting habitat. The project area does not support habitat suitable for this species.

Species	Listing Status[1] Federal	Listing Status[1] State	SSHCP	Habitat	Potential for Occurrence
Greater sandhill crane *Grus canadensis tabida*	—	ST, FP	Covered	Annual and perennial grassland habitats, moist croplands with rice or corn stubble, and open, emergent wetlands. Typically nests in mounds of wetland plants or hummocks in remote portions of extensive wetlands. Sometimes nests in grass-lined depressions on dry sites.	*Not expected to occur*. Although this species is a regular, often daily, visitor of the adjacent Bufferlands from September through March, the project area does not have suitable habitat for this species. This species is known to breed only in Siskiyou, Modoc, and Lassen counties and in Sierra Valley, Plumas, and Sierra counties.
Least Bell's vireo *Vireo bellii pusillus*	FE	SE	—	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2,000 feet. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, *Baccharis* spp., and mesquite.	*Not expected to occur*. The project area does not support nesting habitat suitable for this species. The adjacent riparian area does not provide dense riparian habitat preferred by this species.
Lesser sandhill crane *Antigone* [=*Grus*] *canadensis*	—	SSC	—	Annual and perennial grassland habitats, moist croplands with rice or corn stubble, and open, emergent wetlands.	*Not expected to occur*. Although this species is a regular winter visitor to the Bufferlands, the project area does not contain suitable habitat for this species. Breeding for the Lesser sandhill crane occurs outside of California.
Loggerhead shrike *Lanius ludovicianus*	—	SSC	Covered	A common resident and winter visitor in lowlands and foothills throughout California. Prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. Occurs only rarely in heavily urbanized areas, but often found in open cropland. Sometimes uses edges of denser habitats. Nests in riparian, shrubland, and open woodlands.	***May occur.*** May forage within the ruderal habitat for insects and small mice. The project area lacks suitable nesting habitat but riparian area north and east of project area provides suitable nesting and foraging habitat.
Northern harrier *Circus cyaneus*	—	SSC	Covered	Coastal salt and fresh-water marsh. Nest and forage in grasslands, from salt grass in desert sink to mountain cienagas. Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas.	*Not expected to occur*. The project area does not contain marsh or grassland nesting habitat suitable for this species. The ruderal grassland habitat present in the project area does not provide sufficient cover for nesting northern harriers.
Purple martin *Progne subis*	—	SSC	—	Inhabits woodlands, low elevation coniferous forest of Douglas-fir, ponderosa pine, and Monterey pine. Nests in old woodpecker cavities mostly, also in human-made structures. Nest often located in tall, isolated tree/snag.	*Not expected to occur*. The project area does not support nesting habitat suitable for this species.
Song sparrow ("Modesto" population) *Melospiza melodia*	—	SSC	—	Emergent freshwater marshes, riparian willow thickets, riparian forests of valley oak (*Quercus lobata*), and vegetated irrigation canals and levees.	*Not expected to occur*. The project area does not support marsh, swamp, or wetland habitat suitable for this species.

Species	Listing Status[1] Federal	Listing Status[1] State	SSHCP	Habitat	Potential for Occurrence
Swainson's hawk *Buteo swainsoni*	—	ST	Covered	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	***May occur.*** Mature trees and annual grassland in the Bufferlands provide suitable nesting and foraging habitat. Nearest known nest location is 100 feet east of project area within the Bufferlands. The height of the trees immediately east of the staging area in relation to existing ground level likely preclude raptors from nesting in the trees.
Tricolored blackbird *Agelaius tricolor*	—	ST, SSC	Covered	Freshwater marsh, marsh and swamp, swamp, wetland. Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony.	***May occur.*** No suitable habitat for this species is present within the project area; however, the species is known to frequent the Bufferlands. Riparian habitat along Laguna Creek north of the project area may provide suitable nesting habitat.
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	FT	SE	—	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	*Not expected to occur*. The project area does not support nesting habitat suitable for this species. The adjacent riparian area does not provide dense riparian habitat preferred by this species.
White-tailed kite *Elanus leucurus*	—	FP	Covered	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	***May occur.*** Mature trees and annual grassland in the surrounding area provide suitable nesting and foraging habitat, though the project area does not contain suitable habitat for this species.
Yellow-headed blackbird *Xanthocephalus xanthocephalus*	—	SSC	—	Nests in freshwater emergent wetlands with dense vegetation and deep water. Often along borders of lakes or ponds. Nests only where large insects such as Odonata are abundant, nesting timed with maximum emergence of aquatic insects.	*Not expected to occur*. The project area does not support marsh, swamp, or wetland habitat suitable for this species.
Fish					
Chinook salmon - Central Valley spring-run ESU *Oncorhynchus tshawytscha* (pop. 6)	FT	ST	—	Adults depend on pool depth and volume, amount of cover, and proximity to gravel. Water temps >27 ˚C are lethal to adults. Federal listing refers to populations spawning in Sacramento River and tributaries.	*Not expected to occur*. The project area does not contain aquatic habitat suitable for this species.
Chinook salmon - Sacramento River winter-run ESU *Oncorhynchus tshawytscha* (pop. 7)	FE	SE	—	Sacramento River below Keswick Dam. Spawns in the Sacramento River, but not in tributary streams. Requires clean, cold water over gravel beds with water temperatures between 6 and 14˚C for spawning.	*Not expected to occur*. The project area does not contain aquatic habitat suitable for this species.

Species	Listing Status[1] Federal	Listing Status[1] State	SSHCP	Habitat	Potential for Occurrence
Longfin smelt *Spirinchus thaleichthys*	FC	SSC	—	Euryhaline, nektonic, and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15-30 ppt but can be found in completely freshwater to almost pure seawater.	*Not expected to occur*. The project area does not contain aquatic habitat suitable for this species.
Sacramento perch *Archoplites interruptus*	—	SSC	—	Historically found in the sloughs, slow-moving rivers, and lakes of the Central Valley. Prefers warm water. Aquatic vegetation is essential for young. Tolerates wide range of physio-chemical water conditions.	*Not expected to occur*. The project area does not contain aquatic habitat suitable for this species.
Sacramento splittail *Pogonichthys macrolepidotus*	—	SSC	—	Endemic to the lakes and rivers of the Central Valley, but now confined to the Delta, Suisun Bay, and associated marshes. Slow moving river sections, dead end sloughs. Requires flooded vegetation for spawning and foraging for young.	*Not expected to occur*. The project area does not contain aquatic habitat suitable for this species.
Steelhead - Central Valley DPS *Oncorhynchus mykiss irideus* (pop. 11)	FT	—	—	Populations in the Sacramento and San Joaquin rivers and their tributaries.	*Not expected to occur*. The project area does not contain aquatic habitat suitable for this species.
Invertebrates					
Crotch bumble bee *Bombus crotchii*	—	SC	—	Bumble bees have three basic habitat requirements: suitable nesting sites for the colonies, availability of nectar and pollen from floral resources throughout the duration of the colony period (spring, summer, and fall), and suitable overwintering sites for the queens. Crotch bumble bee historically ranged from coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include *Antirrhinum*, *Phacelia*, *Clarkia*, *Dendromecon*, *Eschscholzia*, and *Eriogonum*.	*Not expected to occur*. The project area does not support plants associated for this bumble bee.
Midvalley fairy shrimp *Branchinecta mesovallensis*	—	—	Covered	Vernal pools in the Central Valley.	*Not expected to occur*. The project area does not support vernal pool or wetland habitat suitable for this species.
Ricksecker's water scavenger beetle *Hydrochara rickseckeri*	—	—	Covered	Aquatic, Sacramento/San Joaquin Rivers flowing and standing waters. Aquatic.	*Not expected to occur*. The project area does not support aquatic habitat suitable for this species.
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT	—	Covered	Occurs only in the Central Valley of California, in association with blue elderberry (*Sambucus nigra* ssp. *caerulea*). Prefers to lay eggs in elderberries 2-8 inches in diameter; some preference shown for "stressed" elderberries.	*Not expected to occur*. The project area does not contain blue elderberry habitat suitable for this species. Elderberry shrubs are known to occur in the Bufferlands, nearest is approximately 260 feet southeast of the project area.

Species	Listing Status[1] Federal	Listing Status[1] State	SSHCP	Habitat	Potential for Occurrence
Vernal pool fairy shrimp *Branchinecta lynchi*	FT	—	Covered	Endemic to the grasslands of the Central Valley, Central Coast mountains, and South Coast mountains, in astatic rain-filled pools. Inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	*Not expected to occur*. The project area does not support vernal pool or wetland habitat suitable for this species.
Vernal pool tadpole shrimp *Lepidurus packardi*	FE	—	Covered	Inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water. Pools commonly found in grass bottomed swales of unplowed grasslands. Some pools are mud-bottomed and highly turbid.	*Not expected to occur*. The project area does not support vernal pool or wetland habitat suitable for this species.
Mammals					
American badger *Taxidea taxus*	—	SSC	Covered	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils, and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	*Not expected to occur*. There are no documented American badger occurrences in the project area, which does not contain friable soils suitable for burrowing habitat.
Western red bat *Lasiurus blossevillii*	—	SSC	Covered	Roosts primarily in trees, 2-40 feet above ground, from sea level up through mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	*Not expected to occur*. The project area does not support habitat suitable for this species. The cottonwood trees do not provide suitable habitat as they are below the surrounding ground level and existing tall ruderal vegetation does not provide open areas below the trees.
Reptiles					
Giant garter snake *Thamnophis gigas*	FT	ST	Covered	Prefers freshwater marsh and low gradient streams. Has adapted to drainage canals and irrigation ditches. This is the most aquatic of the garter snakes in California.	*Not expected to occur*. Although the nearest CNDDB recorded observation is from Laguna Creek, 370 feet north of project area. Laguna Creek is separated from the project area by a levee and vertical 4- to 5-foot flood wall; and the project area does not support aquatic nor upland habitat suitable for this species. The detention basin north of project area (Emergency Storage Basin E) does not inundate on a regular basis and thus does not provide suitable habitat for this species. In addition, there is no direct connection to surface waters or aquatic habitat.
Western pond turtle *Actinemys marmorata*	—	SSC	Covered	A thoroughly aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches, usually with aquatic vegetation, below 6,000 feet elevation. Need basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	*Not expected to occur*. The project area does not support aquatic habitat suitable for this species and it is separated from habitat suitable in the Bufferlands, by a levee, concrete wall, and chain link fence. In addition, there is no direct connection to surface waters or aquatic habitat.

Notes:

[1] Status definitions:

Federal:

FT Threatened (legally protected under ESA)

FE Endangered (legally protected under ESA)

FC Candidate for listing under ESA (legally protected)

State:

SE Endangered (legally protected under CESA)

ST Threatened (legally protected under CESA)

SC Candidate for listing under CESA (legally protected)

FP Fully Protected (legally protected under California Fish and Game Code)

SSC Species of Special Concern (protected under CEQA, but not legally protected under CESA)

Not Expected to Occur – For wildlife species, suitable habitat is not in project area or else surrounding urban development makes occurrence unlikely. For plant species, suitable habitat is lacking, or presence is unlikely due to rarity of species and/or the nearest known occurrence is greater than 5 miles.

May Occur – Suitable habitat is present in the project area and the nearest known occurrence is within 5 miles.

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