
Initial Study/Mitigated Negative Declaration **Wastewater Energy and Electrical Resiliency Project**

OCTOBER 2026

Prepared for:

CITY OF SANTA CRUZ

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City of Santa Cruz

Mitigated Negative Declaration

The Administrator of Environmental Quality of the City of Santa Cruz has prepared this Mitigated Negative Declaration for the following described project:

Project: City of Santa Cruz Wastewater Energy and Electrical Resiliency Project

Application No.: Not Applicable

Project Location: 110 California Street, Santa Cruz, California

Project Description: The City of Santa Cruz (City) has prepared an Initial Study/Mitigation Negative Declaration (IS/MND) for the Wastewater Energy and Electrical Resiliency (WEER) Project (“proposed project” or “project”). The project would modernize and replace aging electrical infrastructure at the City Wastewater Treatment Facility (WWTF) to improve electrical system reliability, resiliency, operational flexibility, worker safety, and emergency preparedness. Most of the electrical distribution systems at the facility were installed in the 1980’s and 1990’s. While the equipment has been diligently maintained, it has exceeded its useful life and creates operational and maintenance challenges. The project includes replacement of deteriorated underground electrical distribution lines, completion of a redundant facility-wide electrical loop, replacement and consolidation of substations, transformers, and switchgear, construction of a new main electrical building, demolition of the existing maintenance building, installation of a new centralized standby power generation system, and upgrades to electrical equipment serving treatment processes such as interstage pumps and aeration blowers. The project would also replace obsolete medium-voltage equipment with modern electrical systems, incorporate upgraded controls and variable-frequency drives to improve operational efficiency, and provide infrastructure capable of supporting long-term WWTF operations. Replacements and upgrades are needed to improve reliability, safety, maintainability, and alignment with current standards to establish a 30-to-40-year service lifespan.

Applicant: City of Santa Cruz

Applicant Address: City of Santa Cruz Public Works Department
809 Center Street, Room 201
Santa Cruz, California 95060

Finding: The City of Santa Cruz Public Works Department has reviewed the proposed project and has determined that the project, based on the Initial Study attached hereto, would not have a significant effect on the environment. An Environmental Impact Report is not required pursuant to the California Environmental Quality Act of 1970. This environmental review process and Mitigated Negative Declaration is done in accordance with the State CEQA Guidelines and the local City of Santa Cruz CEQA Guidelines and Procedures.

Mitigation Measures: The seven mitigation measures identified in the Initial Study are listed below and will be incorporated into the project design or as conditions of approval, to ensure that any potential effects on the environment will not be significant.

Summary of Impacts and Mitigation Measures

Impact	Mitigation Measure
Biological Resources	
<p>Project construction could result in potentially significant impacts on special-status wildlife species. Mitigation measures would ensure that impacts would be less than significant.</p>	<p>MM-BIO-1: Pre-Activity Surveys for Nesting Birds. Prior to any construction activities scheduled during the bird nesting season (February 1 to August 31), a qualified wildlife biologist with demonstrated nest-searching experience will conduct pre-construction surveys for nesting birds, including white-tailed kite and other raptors. The pre-construction survey will occur no more than 7 days prior to the onset of ground-disturbing activities (including clearing, grubbing, and staging).</p> <p>If active nests are found during the survey, the biologist will establish a no-disturbance buffer around the nest and mark the buffer perimeter with high-visibility fencing, flagging, or pin flags. The size of the buffer will be based on the species' sensitivity to disturbance and planned work activities in the vicinity; typical buffer sizes are 250 feet for raptors and 50 feet for passerines.</p> <p>The no-disturbance buffer will remain in effect until the nest is no longer active. If a lapse in project-related activities of 15 days or longer occurs, another pre-construction survey will be conducted.</p>
	<p>MM-BIO-2: Pre-Activity Surveys for Roosting Bat. If tree trimming is scheduled to begin during the peak activity timeframes (from March to April and August to October), then within 2 weeks prior to tree trimming, a qualified biologist will examine trees to be trimmed for suitable bat roosting habitat. High-quality habitat features (e.g., large tree cavities, basal hollows, loose or peeling bark, larger snags) will be identified, and the area around these features searched for bats and bat sign (e.g., guano, culled insect parts, staining). Riparian woodland and stands of mature broadleaf trees will be considered potential habitat for solitary foliage roosting bat species.</p> <p>If bat sign is detected, biologists will conduct an evening visual emergence survey of the source habitat feature, from a half hour before sunset to 1–2 hours after sunset for a minimum of 2 nights within the season that construction would be taking place. Night-vision goggles and/or full-spectrum acoustic detectors will be used during emergence surveys to assist in species identification. All emergence surveys will be conducted during favorable weather conditions (calm nights with temperatures conducive to bat activity and no precipitation predicted).</p> <p>If a potentially active bat roost is identified within a tree proposed for trimming, passive monitoring with full-spectrum bat detectors will be used to assist in determining species present. A minimum of 4 nights of acoustic monitoring surveys will be conducted within the season that construction would be taking place. If site security allows, detectors should be set to record bat calls for the duration of each night. To the extent possible, all monitoring will be conducted during favorable weather conditions (calm nights with temperatures conducive to bat activity and no precipitation predicted). The</p>

Summary of Impacts and Mitigation Measures

Impact	Mitigation Measure
	<p>biologists will analyze the bat call data using appropriate software and prepare a report that will be submitted to the City and CDFW.</p> <p>Additional avoidance and minimization measures may be necessary if it is determined that bats are using the trees as roost sites or if sensitive bat species are detected during acoustic monitoring. Appropriate measures will be determined in coordination with CDFW and may include any combination of the measures listed below.</p> <ul style="list-style-type: none"> ▪ If a maternity roost is located, whether solitary or colonial, that roost will remain undisturbed with a buffer, as determined by a qualified biologist, until September 15 or until the biologist has determined that the roost is no longer active. ▪ If a non-maternity roost in a tree is found, every effort should be made to avoid the roost, as methods to evict bats from trees are largely untested. ▪ If a non-maternity roost is found within trees that cannot be avoided, eviction will be attempted using procedures designed, in consultation with CDFW, to reduce the likelihood of mortality of evicted bats. In all cases, the following stipulations will be observed. <ul style="list-style-type: none"> - Eviction will not occur before September 15 and will match the timeframe for tree trimming approved by USFWS and CDFW for nesting birds and other sensitive wildlife. - Qualified biologists will carry out or oversee the eviction tasks and will monitor the tree trimming. - Eviction will take place late in the day or in the evening to reduce the likelihood of evicted bats falling prey to diurnal predators. - Eviction will take place during weather and temperature conditions conducive to bat activity. ▪ Non-injurious harassment at the roost site, such as ultrasound deterrents or other sensory irritants, may be used to encourage bats to leave on their own. ▪ Prior to tree trimming and after other eviction efforts have been attempted, any confirmed roost site will be gently shaken or repeatedly struck with a heavy implement such as a sledgehammer or an ax; several minutes should pass before trimming limbs to allow bats time to arouse and leave the roost. The biologists will search downed vegetation for dead and injured bats. The presence of dead or injured bats will be reported to CDFW. Injured bats will be transported to the nearest CDFW-permitted wildlife rehabilitation facility. <hr/> <p>MM-BIO-3: Pre-Activity Surveys for Monarchs. The project will implement the following measures to reduce impacts to overwintering monarchs.</p> <ul style="list-style-type: none"> ▪ Any trimming of the eucalyptus tree will occur outside of the monarch overwintering period (October through March), to the extent feasible.

Summary of Impacts and Mitigation Measures

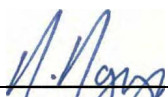
Impact	Mitigation Measure
	<ul style="list-style-type: none"> ▪ If trimming must occur between October and March, a qualified biologist will survey the tree no earlier than 1 week prior to tree trimming to determine if any monarch butterflies are present. If monarchs are present, the qualified biologist will establish a no-disturbance buffer around the tree and mark the buffer perimeter with high-visibility fencing, flagging, or pin flags. The size of the buffer will be based on the height of the occupied tree and size of the overwintering group. ▪ The no-disturbance buffer will remain in effect until the monarchs have dispersed for migration and the tree is no longer in use for overwintering.
Project construction could result in potentially significant impacts on a sensitive natural community. The mitigation measure would ensure that impacts would be less than significant.	<p>MM-BIO-4: Arroyo Thicket Avoidance and Restoration. The project will implement the following measures to avoid or reduce impacts to sensitive natural communities:</p> <ul style="list-style-type: none"> ▪ All mature live trees within the arroyo willow thicket will be completely avoided during vegetation removal activities. ▪ Prior to ground disturbance, a qualified biologist or restoration specialist will prepare a restoration and revegetation plan to address temporary impacts on the arroyo willow thicket. The restoration and revegetation plan would outline, at a minimum: <ul style="list-style-type: none"> - Procedures for documenting pre-construction conditions for restoration purposes - Sources of plant materials and methods of propagation - Specification of parameters for maintenance and monitoring of the restored arroyo willow thicket, including weed control measures, frequency of field checks, and monitoring reports - Specification of success criteria for re-plantings - Specification of the remedial measures to be taken if success criteria are not met - Maintenance, monitoring, and reporting schedules, including an annual report due to the City by January 31st of the following year ▪ After construction is complete, temporarily disturbed areas will be revegetated with arroyo willow using appropriate and well-documented techniques (e.g., live-staking of dormant branches). Branches will be obtained from nearby mature willows.
Cultural and Tribal Cultural Resources	
Project construction could result in a potentially significant impacts on unknown archaeological resource or tribal cultural resources. Mitigation measures would ensure that impacts would be less than significant.	<p>MM-CUL-1: Worker Environment Awareness Training. Cultural Resources Worker Environmental Awareness Training would be required for all personnel involved in ground-disturbing work. Training should be completed before personnel begin such work and should summarize the cultural sensitivity of the Project vicinity, types of archaeological materials that could be encountered, confidentiality requirements for cultural resource locations, stop-work procedures, and notification protocols. The City or its contractor should document attendance and each participant's acknowledgment of the stop-work and notification procedures.</p>

Summary of Impacts and Mitigation Measures

Impact	Mitigation Measure
	<p>MM-CUL-2: Inadvertent Discovery Protocols for Cultural Resources and Human Remains. If cultural resources are encountered during project implementation, the contractor shall immediately stop work within a reasonable distance sufficient to protect the discovery, initially 50 feet unless adjusted by a qualified archaeologist, and notify the City and qualified archaeologist. The archaeologist shall evaluate the discovery and recommend appropriate treatment. Work within the protected area may resume only after the City, in consultation with the qualified archaeologist, authorizes it. If human remains are discovered, all work shall cease in the vicinity, the remains and associated materials shall be protected from further disturbance, and the Santa Cruz County Coroner shall be notified in accordance with California Health and Safety Code Section 7050.5. If the coroner determines that the remains are Native American, the coroner shall notify the Native American Heritage Commission, and the procedures in Public Resources Code Section 5097.98, including consultation with the Most Likely Descendant, shall be followed.</p>
<p>Geology and Soils</p> <p>Project construction could result in a potentially significant impact on paleontological resources. The mitigation measure would ensure that impacts would be less than significant.</p>	<p>MM-GEO-1: Paleontological Resources Mitigation and Monitoring Program and Paleontological Monitoring. Prior to commencement of any grading activity on site, the City shall retain a qualified paleontologist per the most current Society of Vertebrate Paleontology (SVP) guidelines. The qualified paleontologist shall prepare a Paleontological Resources Mitigation and Monitoring Program (PRMMP) for the project that is consistent with the most current SVP guidelines that outlines requirements for preconstruction meeting attendance and worker environmental awareness training; where paleontological monitoring is required within the project site based on construction plans and/or geotechnical reports; procedures for adequate paleontological monitoring and discoveries treatment; and paleontological methods (including sediment sampling for microinvertebrate and microvertebrate fossils), reporting, and collections management.</p> <p>A qualified paleontological monitor shall be on site during ground-disturbing activities (including augering) below a depth of five feet below the ground surface in areas underlain by Holocene basin deposits to determine if they are old enough to preserve scientifically significant paleontological resources. Full-time paleontological monitoring is required in areas underlain by the Purisima Formation and Pleistocene marine terrace deposits, if encountered.</p> <p>In the event that paleontological resources (e.g., fossils) are unearthed during grading, the paleontological monitor will temporarily halt and/or divert grading activity to allow recovery of paleontological resources. The area of discovery will be roped off with a 50-foot radius buffer. Once documentation and collection of the find is completed, the monitor will allow grading to recommence in the area of the find. Upon completion of the monitoring program, a final</p>

Summary of Impacts and Mitigation Measures

Impact	Mitigation Measure
	paleontological monitoring report shall be submitted to the City of Santa Cruz and in the case of fossil recovery, the accredited fossil repository (e.g., the Santa Cruz Museum of Natural History). Costs associated with laboratory work and curation fees are the responsibility of the City.



Nathan Nguyen P.E. Public Works Director
Administrator of Environmental Quality
City of Santa Cruz, California



Date

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
AB	Assembly Bill
ADT	average daily traffic
APN	Assessor's Parcel Number
Basin Plan	Water Quality Control Plan for the Central Coastal Basin
BMP	Best Management Practice
BSA	biological study area
CAL FIRE	California Department of Forestry and Fire Protection
CalEPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CRHR	California Register of Historic Places
CARB	California Air Resources Board
CBC	California Building Code
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFGF	California Fish and Game Code
CFR	Code of Federal Regulations
CGS	California Geological Survey
CH ₄	Methane
CHL	California Historical Landmarks
CHRIS	California Historical Resources Information System
City	City of Santa Cruz
CSCHRI	City of Santa Cruz Historic Resources Inventory
CNDDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNPS	California Native Plant Society
CO	carbon monoxide
CO ₂	carbon dioxide
CWA	Clean Water Act
dBA	A-weighted decibels
DOC	Department of Conservation
DTSC	Department of Toxic Substances Control
DPM	Diesel Particulate Matter
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FHSZ	Fire Hazard Severity Zone
FIRM	Flood Insurance Rate Map
FMMP	Farmland Mapping and Monitoring Program
FTA	Federal Transit Administration
GHG	greenhouse gas

Acronym/Abbreviation	Definition
ISO	International Organization of Standardization
IPaC	Information, Planning, and Consultation
IS	initial study
LOS	level of service
MBARD	Monterey Bay Air Resources District
MBTA	Migratory Bird Treaty Act
MM	Mitigation Measure
MND	mitigated negative declaration
MRZ	Mineral Resource Zone
N ₂ O	nitrous oxide
NAHC	Native American Heritage Commission
NCCAB	North Central Coast Air Basin
NCCP	natural community conservation plan
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NWIC	Northwest Information Center
O ₃	ozone
OEHHA	Office of Environmental Health Hazard Assessment
OMHCP	Operation and Maintenance Habitat Conservation
OSHA	Occupational Safety and Health Administration
Pb	lead
PM _{2.5}	fine particulate matter
PM ₁₀	inhalable particular matter
PPV	peak particle velocity
ROG	reactive organic gas
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SLF	Sacred Lands File
SMARA	Surface Mining and Reclamation Act
SPR	Southern Pacific Railroad
SO ₂	sulfur dioxide
SO _x	sulfur oxides
SRA	state responsibility area
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
USACE	U.S. Army Corps of Engineers
VMT	vehicle miles traveled
WEER	Wastewater Energy and Electrical Resiliency
WWTF	Wastewater Treatment Facility

1 Introduction

1.1 Project Overview

The City of Santa Cruz (City) has prepared an Initial Study/Mitigation Negative Declaration (IS/MND) for the Wastewater Energy and Electrical Resilience (WEER) project (“proposed project” or “project”). The project would modernize and replace aging electrical infrastructure at the City Wastewater Treatment Facility (WWTF) to improve electrical system reliability, resiliency, operational flexibility, worker safety, and emergency preparedness. Most of the electrical distribution systems at the facility were installed in the 1980’s and 1990’s. While the equipment has been diligently maintained, it has exceeded its useful life and creates operational and maintenance challenges. The project includes replacement of deteriorated underground electrical distribution lines, completion of a redundant facility-wide electrical loop, replacement and consolidation of substations, transformers, and switchgear, construction of a new main electrical building, demolition of the existing maintenance building, installation of a new centralized standby power generation system, and upgrades to electrical equipment serving treatment processes such as interstage pumps and aeration blowers. The project would also replace obsolete medium-voltage equipment with modern electrical systems, incorporate upgraded controls and variable-frequency drives to improve operational efficiency, and provide infrastructure capable of supporting long-term WWTF operations. Replacements and upgrades are needed to improve reliability, safety, maintainability, and alignment with current standards to establish a 30-to-40-year service lifespan.

1.2 Document Contents and Format

The California Environmental Quality Act (CEQA) applies to proposed projects initiated by, funded by, or requiring discretionary approvals from state or local government agencies. The proposed project constitutes a project as defined by CEQA (California Public Resources Code, Section 21065). The City is the CEQA lead agency for the proposed project. Pursuant to CEQA Guidelines Section 15063(d), an Initial Study (IS) must contain the following:

1. A description of the project including the location of the project;
2. An identification of the environmental setting;
3. An identification of environmental effects by use of a checklist, matrix, or other method, provided that entries on a checklist or other form are briefly explained to indicate that there is some evidence to support the entries. The brief explanation may be either through a narrative or a reference to another information source such as an attached map, photographs, or an earlier EIR or negative declaration. A reference to another document should include, where appropriate, a citation to the page or pages where the information is found.
4. A discussion of the ways to mitigate the significant effects identified, if any;
5. An examination of whether the project would be consistent with existing zoning, plans, and other applicable land use controls; and,
6. The name of the person or persons who prepared or participated in the Initial Study.

An IS has been prepared by the City, as the lead agency, in accordance with CEQA Guidelines to evaluate potential environmental effects and to determine whether an Environmental Impact Report, a Negative Declaration, or a Mitigated Negative Declaration (MND) should be prepared for the proposed project. The IS has also been prepared to satisfy CEQA requirements of other agencies that may provide approvals, permits, and/or funding for the proposed project.

In accordance with CEQA Guidelines Section 15369.5, an MND is “prepared for a project when an initial study has identified potentially significant effects on the environment, but (1) revisions in the project plans or proposals made by, or agreed to by, the Applicant before the proposed negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur, and (2) there is no substantial evidence in light of the whole record before the lead agency that the project, as revised, may have a significant effect on the environment.” The IS for the proposed project determined that the project could cause some potentially significant impacts on the environment, but as shown in the environmental analysis contained herein, those potentially significant impacts would be reduced to less than significant through the implementation of mitigation measures. Consequently, an MND has been prepared for the proposed project.

The City’s decision makers must review and consider the MND in its discretion to approve, revise, or deny the project, as appropriate. The MND serves as the primary environmental document pursuant to CEQA for implementation of the project, including all required discretionary approvals.

This document is organized into the following sections:

- **Chapter 1, Introduction**, introduces and gives context to the project, outlines CEQA compliance and describes the document content and format. Chapter 1 also discusses the public review process.
- **Chapter 2, Project Setting and Description**, describes the existing conditions within the project study area. This chapter also identifies the project's location and background and describes the project components in further detail.
- **Chapter 3, Environmental Impact Analysis**, presents an analysis of environmental impacts and the significance finding for each resource topic.
- **Chapter 4, References and Preparers**, provides the list of informational sources used for this IS, and identifies the individuals who prepared and/or contributed to the MND and supporting IS and technical studies as well as their areas of technical specialty.

1.3 Public Review Process

The City has issued a Notice of Intent (NOI) to Adopt a MND for the proposed project. In accordance with CEQA and the CEQA Guidelines, a 30-day public review period for this IS/MND will commence on October 21, 2026, and end on November 20, 2026. The IS/MND will be distributed for review to interested and involved public agencies, responsible/trustee agencies, organizations, and private individuals that request in writing to be informed of the proposed project. A hard copy of the IS/MND is also available for public review during regular business hours at:

City of Santa Cruz Public Works Department
809 Center Street, Room 201
Santa Cruz, California 95060

An electronic copy of the IS/MND can be viewed at
<https://www.santacruzca.gov/Government/City-Departments/Public-Works/Projects>

During the public review period, the public will have the opportunity to provide written comments on the information contained within this IS/MND. The lead agency's discretionary approval/denial of the proposed project will consider the information contained in this document.

In reviewing the IS/MND, interested members of the public are encouraged to focus on the sufficiency of the document in identifying and analyzing potential project impacts on the environment, as well as the sufficiency of any mitigation measures proposed to reduce potential impacts to less than significant. Written comments on the IS/MND should be submitted by the end of the public review period. Please submit written comments by mail or via email with the subject line **"WEER project"** to the following contact:

Ryan Haley
Assistant Engineer
City of Santa Cruz Public Works Department
809 Center Street, Room 201
Santa Cruz, California 95060
Rhaley@santacruzca.gov

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2 Setting and Project Description

This chapter provides a description of the proposed project, and includes information about the location and setting, background, project components, and required project approvals.

2.1 Project Location and Setting

The project is located within the existing City of Santa Cruz WWTF at 110 California Street in the City of Santa Cruz, California, consisting of five parcels (Assessor's Parcel Numbers [APNs]): 004-331-02, 004-331-03, 004-331-05, 004-331-06, and 004-331-08 (see Figure 1 and Figure 2). The WWTF is adjacent to La Barranca Park to the south and Neary Lagoon Park and Wildlife Refuge to the north. Surrounding areas are residential neighborhoods along Bay Street and California Street with the Southern Pacific Railroad (SPRR) and Coastal Rail Trail running southwest of the facility. The majority of the work will take place within the developed footprint of the WWTF.

2.2 Project Background

The City of Santa Cruz has been treating sewage at the WWTF next to the Neary Lagoon Park and Wildlife Refuge since 1928. The facility has been expanded several times to accommodate City growth and flows from the Santa Cruz County Sanitation District. Today, the WWTF serves approximately 145,000 residents, with a rated dry weather design capacity of 17 million gallons per day (MGD), an average daily flow of less than 10 MGD, and a wet weather design capacity of 81 MGD.

The objectives of the project are to modernize and replace electrical infrastructure that is beyond the expected life expectancy at the WWTF and to improve electrical system reliability, resiliency, operational flexibility, worker safety, and emergency preparedness in support of the overall long-term operations of the facility (Brown and Caldwell 2026). Most of the electrical distribution systems at the facility were installed in the 1980's and 1990's. While the equipment has been diligently maintained, it has exceeded its useful life and creates operational and maintenance challenges. Replacements and upgrades are needed to improve reliability, safety, maintainability, and alignment with current standards to establish a 30-to-40-year service lifespan. Project components are further described below.

2.3 Project Components

The project includes replacement of deteriorated underground electrical distribution lines, completion of a redundant facility-wide electrical loop, replacement and consolidation of substations, transformers, and switchgear, demolition of the existing maintenance building, construction of a new main electrical building, installation of a new centralized standby power generation system, and upgrades to electrical equipment serving treatment processes such as interstage pumps and aeration blowers (Figure 3). The project would also replace obsolete medium-voltage equipment with modern electrical systems, incorporate upgraded controls and variable-frequency drives to improve operational efficiency, and provide infrastructure capable of supporting long-term WWTF operations.

2.3.1 Electrical Distribution System Modernization

The project would replace aging 21-kV electrical distribution equipment and construct a fully redundant A/B loop electrical distribution system throughout the WWTF. Existing underground conduit systems, duct banks, manholes, handholes, and utility corridors would be reused where feasible. New underground conduits and conductors would be installed where necessary to replace obsolete infrastructure and complete gaps in the existing electrical loop. As part of the electrical system upgrades, an approximately 625-foot-long duct bank will be excavated along the perimeter of the WWTF. Dimensions of the duct bank trenches are approximately 3 feet wide and up to 6 feet deep within the existing footprint of the WWTF. The trenching footprint near Sub-station 3A/3B may require adjustment of the proposed alignment depending on subsurface conditions. Electric cable and other equipment would be installed within the excavated duct bank footprint and tie into the PG&E switchgear through existing conduits adjacent to Bay Street following construction (see Figure 3).

2.3.2 Substation and Equipment Replacement

Eight existing substations, transformers, switchgear, protective equipment, and related infrastructure would be replaced throughout the WWTF. Prior to excavation activities and installation of new equipment, existing gear and equipment will be removed back to a safe junction point. Where possible, removed equipment and materials will be disassembled and reused or recycled. Existing liquid-filled transformers at the substations will be removed, drained and salvaged or recycled. The mineral oil drained from the transformers will be disposed of at an appropriate landfill. None of the transformers contain polychlorinated biphenyls (PCBs) as they were installed after the manufacturing ban on their use in the United States. Placement of the new substations and associated equipment would require minor excavation within the existing substation footprints (see Figure 3). Excavation depths will vary from 2 feet to 6 feet depending on conditions. Equipment removal and replacement would largely occur within existing developed equipment areas, existing substations, and adjacent hard-scape areas. Proposed work at Sub-station 3A/3B may require trimming of one large eucalyptus tree in order to access the area for placement of the foundation for the new equipment. All WWTF processes would remain operational through phased installation and temporary power systems.

2.3.3 Main Electrical Building Replacement and Emergency Power Improvements

The existing maintenance building would be demolished and replaced with a new approximately 2,000 square foot main metal framed electrical building (see Figure 3). Demolition would include utility disconnections, hazardous materials abatement as necessary, structure removal, foundation removal, and utility relocation. The new building would be approximately 13 feet high at the roof peak and contain primary switchgear, communications equipment, battery systems, fire suppression systems, heating and cooling equipment, and facility storage. Associated improvements would include foundation installation, utility connections, security features, drainage improvements, and equipment pads. The new building foundation is currently assumed to be approximately 3 feet above grade to account for future sea level and enhance the long-term resilience of the WWTF critical electric infrastructure. (Brown and Caldwell, 2026).

The project would replace existing standby power systems with a centralized backup generation system capable of supporting WWTF operations during utility outages. Improvements would include removal of two 400 kW and one 1000 kW existing standby generators and installation of a new standby generator, transformers, electrical

equipment, fuel storage systems, exhaust systems, and protective equipment. A new approximately 2.5 MW standby diesel generator with a Tier 4 engine or equivalent will be installed within the footprint of the demolished maintenance building in a separate metal enclosure measuring approximately 45 feet long by 12 feet wide and 22 feet high. The enclosure will also have an approximately 24-diameter exhaust stack extending approximately 6 feet above the roof. The new standby generator will contain approximately 4,000 gallons of fuel (24 hours' worth) and only operate when utility power is lost or during routine testing and maintenance. Runtime of the generator will be limited to Monterey Bay Air Resource District (MBARD) permit requirements.

2.3.4 Pump, Blower and Control System Improvements

The project would replace and upgrade electrical systems serving pumps and aeration blowers. Existing medium-voltage motors would be replaced with modern equipment and connected to new variable-frequency drives and control systems. New control equipment would improve energy efficiency, operational flexibility, and process reliability. Improvements would occur within existing treatment process areas and would not change the treatment capacity or treatment processes conducted at the WWTF.

2.3.5 Construction

The following describes construction aspects relevant to the different project elements.

Underground Utilities, Trenching, and Excavation

Construction of some upgrade elements would include utility locating, potholing, trenching, excavation, conduit installation, cable placement, backfilling, paving restoration, and site restoration. Due to the existing dense network of electrical duct backs, piping and other infrastructure, utility investigations will be performed using records review, field surveys, utility marking, potholing, and other subsurface utility engineering methods, prior to excavation activities. Excavation and trenching will be conducted using typical methods using a backhoe, hydroexcavation, potholing or hand techniques. Overall excavation volumes are estimated to be approximately 1,230 cubic yards for all aspects of the project. Where feasible, excavated material will be reused as backfill and compacted back into place. Construction grading and excavation activities would comply with applicable City requirements and erosion and sediment control best management practices (BMPs) to minimize erosion and sediment transport.

The segment of the SPRR shall be avoided during all phases of project implementation. The project would utilize existing conduit beneath the SPRR and would not require subsurface disturbance, trenching, or modifications to the railroad embankment/bed, track structure, or associated features. Temporary fencing or flagging shall be installed, as needed, to identify the railroad right-of-way and establish a buffer around the historic resource. Construction staging, equipment access, material storage, and other project-related activities shall occur outside the designated avoidance area. These measures would ensure that no inadvertent damage occurs to character-defining features of the SPRR segment.

Temporary Facilities and Utility Bypasses

Temporary power systems, generator connections, bypass electrical systems, temporary feeders, and temporary utility connections would be required at various stages of construction to maintain uninterrupted WWTF operations. Temporary facilities would generally be located within developed portions of the WWTF and removed following project completion.

Dewatering

Dewatering during excavation activities may be needed depending on site conditions at the time of construction. Where groundwater is encountered, the work site will be isolated, and sump-pumps will be installed. Water will be pumped into baker tanks for settling. Water will be drained out of the tanks via metered hose into the sanitary sewer system. All applicable water Best Management Practices (BMPs) will be implemented during dewatering activities.

Construction Equipment, Staging, Workforce, and Activities

Construction activities would include demolition, excavation, grading, trenching, utility relocation, concrete placement, structural construction, equipment installation, crane operations, paving repair, testing, and commissioning. Equipment may include excavators, backhoes, loaders, cranes, forklifts, boom lifts, demolition hammers, trench compactors, paving equipment, dump trucks, delivery vehicles, and specialty electrical installation equipment. Access to and from the project area would be via public roads and the main facility roadway off of California Street (Figure 2). No public street closures will be required. If needed, a detailed Traffic Control Plan will be developed by the contractor for traffic management during construction. Staging and worker parking will be mostly within the WWTF facility and may include parking at a city spaces immediately adjacent if needed. Daily workforce levels would range from 15 to 25 workers and vary by construction phase, with peak staffing occurring during major infrastructure installation activities. Work hours will be between 8:00 AM and 5:00 PM on weekdays. Weekend or evening work is not anticipated but could occur occasionally for specific time-sensitive construction activities with approval from the City.

Construction Schedule and Post Construction Operations

Project implementation is anticipated to span approximately 28 to 36 months including final design, equipment procurement, demolition, construction, testing, and commissioning. Early activities would include utility investigations, conduit inspections, potholing, hazardous materials abatement, and procurement of long-lead electrical equipment. Construction steps would involve the following: demolition of the maintenance building, construction of the new electrical building, and phased replacement of substations, generators, underground electrical infrastructure, and process-support electrical systems. New systems would be tested and commissioned before existing systems are removed from service, if appropriate. During and following construction, the WWTF would continue operating as an existing wastewater treatment facility. The project would not increase treatment capacity or expand service areas.

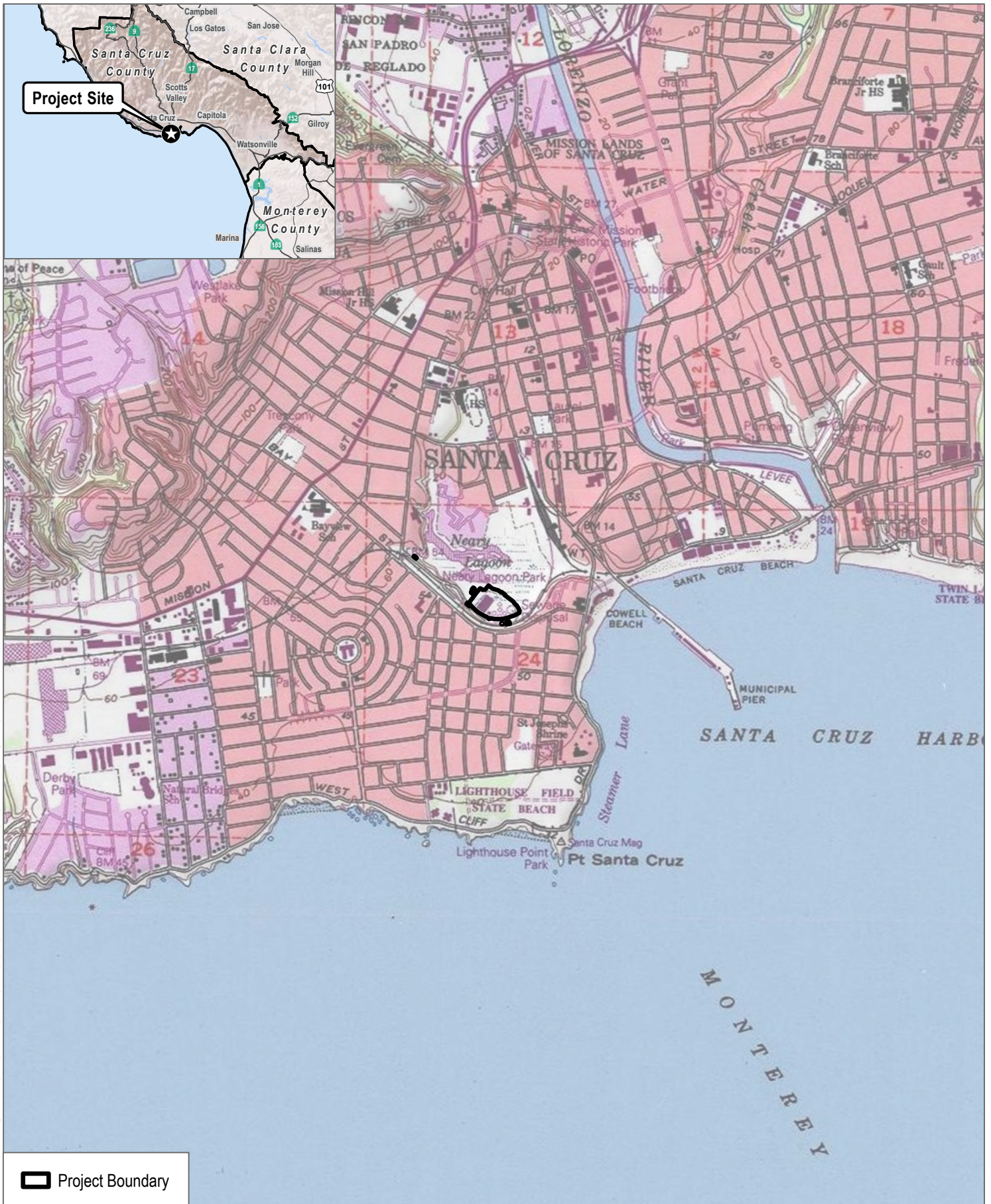
2.4 Project Approvals

Table 2-1 identifies the discretionary approvals required for implementation of the project. Clean Water Act (CWA) Section 404 permit from the U.S. Army Corps of Engineers and 401 water quality certifications from the Central Coast Regional Water Quality Control Board are not required for this project given that no jurisdictional waters or wetlands would be impacted by the project.

Table 2-1. Project Approvals

Agency	Legal Authority	Permit or Approval
State/Regional		
Monterey Bay Air Resources District	Federal Clean Air Act and other state and local regulations	Authority to Construct and Permit to Operate
Regional Water Quality Control Board	California Porter-Cologne Water Quality Control Act	Waste Discharge Permit
Local		
City of Santa Cruz	CEQA	Consideration of MND for Adoption
	Santa Cruz Municipal Code, Title 24	Minor Modifications to Permit No. 92-243 Nonresidential Demolition Authorization Permit Watercourse Development Permit
	Santa Cruz Municipal Code, Title 15	City-Approved Traffic Control Plan

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SOURCE: USGS 7.5-minute Series Santa Cruz Quadrangle
Township 11S, Range 2W, Section 24

FIGURE 1
Project Location
City of Santa Cruz Wastewater Energy and Electrical Resiliency Project

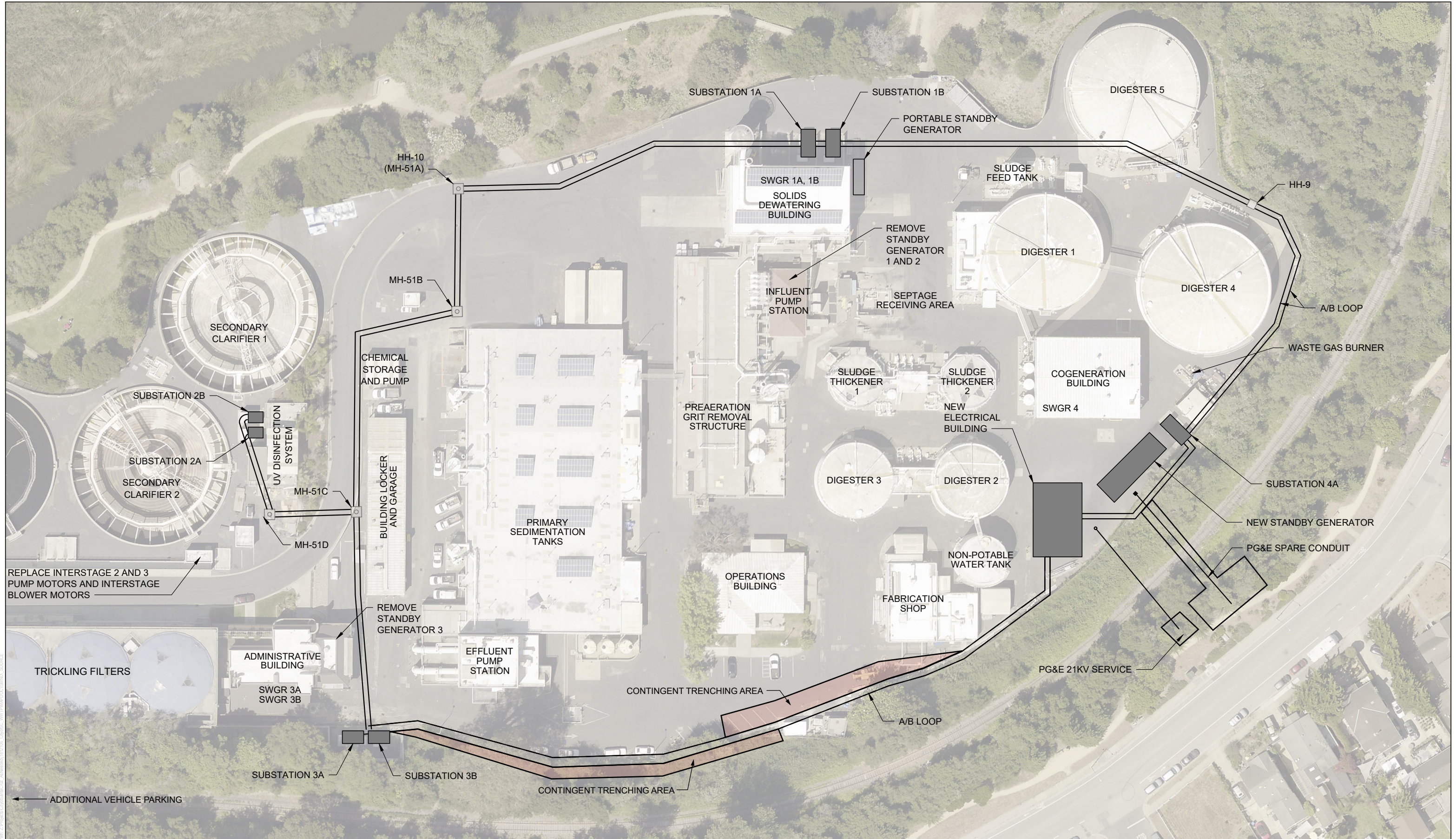
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SOURCE: Google Earth, OpenStreetMap, City of Santa Cruz 2025, Brown and Caldwell 2026

FIGURE 2
Project Site

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SOURCE: Brown and Caldwell

FIGURE 3

Site Plan

City of Santa Cruz Wastewater Treatment Plant Energy and Electrical Resiliency Project

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3 Initial Study Checklist

1. Project title:

Wastewater Energy and Electrical Resiliency Project

2. Lead agency name and address:

City of Santa Cruz
809 Center Street
Santa Cruz, California 95060

3. Contact person and phone number:

Ryan Haley
Assistant Engineer
City of Santa Cruz Public Works Department
809 Center Street, Room 201
Santa Cruz, California 95060
831.420.5179
rhaley@santacruzca.gov

4. Project location:

110 California Street, Santa Cruz, California

5. Project sponsor's name and address:

City of Santa Cruz
809 Center Street, Room 201
Santa Cruz, California 95060

6. General plan designation:

Community Commercial (CC)

7. Zoning:

Public Facilities (PF)

8. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement):

Public agencies whose approval is required include the City of Santa Cruz and the Monterey Bay Air Resources District. See Section 2, Table 2-1 for a complete list of project approvals.

9. 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.?

On August 19, 2026, the City sent AB 52 letters to the two tribes who have requested AB 52 consultation; the Amah Mutsun Tribal Band had no concerns, but requested the final report, and the City engaged with Costanoan Rumsen Carmel Tribe in a consultation meeting on September 15, 2026. See Section 3.18, Tribal Cultural Resources, for additional information.

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.

- | | | |
|--|---|--|
| ☐ Aesthetics | ☐ Agriculture and Forestry Resources | ☐ Air Quality |
| ☒ Biological Resources | ☒ Cultural Resources | ☐ Energy |
| ☒ Geology and Soils | ☐ Greenhouse Gas Emissions | ☐ Hazards and Hazardous Materials |
| ☐ Hydrology and Water Quality | ☐ Land Use and Planning | ☐ Mineral Resources |
| ☐ Noise | ☐ Population and Housing | ☐ Public Services |
| ☐ Recreation | ☐ Transportation | ☒ Tribal Cultural Resources |
| ☐ Utilities and Service Systems | ☐ Wildfire | ☒ Mandatory Findings of Significance |

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 ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.



Nathan Nguyen, P.E., Public Works Director
Administrator of Environmental Quality
City of Santa Cruz, California



Date

Instructions for Environmental Checklist

1. A brief explanation is required for all answers except “No Impact” answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A “No Impact” answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A “No Impact” answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project would not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. “Potentially Significant Impact” is appropriate if there is substantial evidence that an effect may be significant. If there are one or more “Potentially Significant Impact” entries when the determination is made, an Environmental Impact Report (EIR) is required.
4. “Negative Declaration: Less Than Significant With Mitigation Incorporated” applies where the incorporation of mitigation measures has reduced an effect from “Potentially Significant Impact” to a “Less Than Significant Impact.” The lead agency must describe the mitigation measures and briefly explain how they reduce the effect to a less than significant level.
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
 - a. Earlier Analysis Used. Identify and state where they are available for review.
 - b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
 - c. Mitigation Measures. For effects that are “Less Than Significant with Mitigation Measures Incorporated,” describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project’s environmental effects in whatever format is selected.
9. The explanation of each issue should identify:
 - a. the significance criteria or threshold, if any, used to evaluate each question; and
 - b. the mitigation measure identified, if any, to reduce the impact to less than significance

3.1 Aesthetics

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
I. AESTHETICS – Except as provided in Public Resources Code Section 21099, 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 point). 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?	☐	☐	☐	☒

a) Would the project have a substantial adverse effect on a scenic vista?

Less-than-Significant Impact. Scenic vistas generally refer to views of expansive open space areas or other natural features, such as mountains, undeveloped hillsides, large natural water bodies, or coastlines. Less commonly, certain urban settings or features, such as a striking or renowned skyline, may also represent a scenic vista. Scenic vistas also generally refer to views that are accessible from public vantage points, such as public roadways and parks. The City's General Plan 2030 EIR indicates that prominent scenic views are those that are oriented towards the Monterey Bay and Pacific Ocean or toward the Santa Cruz Mountains that frame the northern boundary of the City (City of Santa Cruz 2011). Within the City, significant panoramic views are identified from neighborhoods and open space areas at upper elevations as well as along the coast. General Plan 2030 EIR Figure 4.3.1 identifies panoramic views throughout the City that are mostly oriented towards the ocean or the Santa Cruz Mountains (City of Santa Cruz 2011).

The project site is identified within an Urban View area in the City of Santa Cruz General Plan EIR (City of Santa Cruz 2011). The project would occur primarily within the existing developed footprint of the WWTF and consists of improvements to and replacement of existing electrical infrastructure throughout the facility. Although visible within an urban setting, the project would not substantially obstruct identified public views or degrade the visual character of the Urban View area because it would be constructed within an existing developed facility and would not introduce substantial new visual elements or lighting that would be visible from public vantage points. Therefore, impacts related to scenic vistas would be **less than significant**.

- b) ***Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?***

No Impact. There are no officially designated State Scenic Highways in the City or adjacent unincorporated County area. However, Highway 1 north of the City is identified by the State of California as eligible for a State Scenic Highway designation. Due to intervening terrain and development, views to the project site are not available from the eligible scenic segment of Highway 1. As such, implementation of the project would not damage scenic resources present within a State Scenic Highway and there would be **no impact**.

- c) ***In non-urbanized areas, would the project 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 point). 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 City of Santa Cruz is an “urbanized area” under the definition of the term in CEQA Guidelines section 15387. Per the CEQA Guidelines Environmental Checklist (Appendix G), the City need not specifically consider existing visual character or the quality of the existing views and the project’s potential effect on them. In an urbanized area, a project that conflicts with applicable zoning and other regulations governing scenic quality could be considered to result in a significant impact regarding scenic quality.

Existing views at the project site consist of electrical infrastructure and buildings associated with the WWTF. Public viewpoints into the project area are from the Coastal Rail Trail and Bay Street adjacent to the WWTF. Construction is anticipated to last approximately 28 to 36 months and would introduce temporary visual changes, including the presence of construction equipment and materials in the parking lot and areas within the WWTF. These effects would be temporary in nature and would not result in long-term adverse changes to visual resources once construction is completed. The new main electrical building and generator housing would generally be similar to the existing visual character of the WWTF. The modifications represent minor alternations to an already developed site.

There are no other applicable zoning and other regulations governing scenic quality. The project does not conflict with applicable zoning and other applicable regulations governing scenic quality. As a result, the project impact related to conflicts with applicable zoning and other regulations governing scenic quality is **less than significant**.

- d) ***Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?***

No Impact. Construction of the project would occur during daylight hours and would not require the use of mobile lighting to illuminate the project site. Additionally, no nighttime construction work is expected, requiring lighting. The existing maintenance building would be demolished, and a new main electrical building and generator housing would be constructed in the existing maintenance building footprint. The replacement structures would require lighting similar to existing conditions. Lighting for the new structures would be consistent with City requirements. Based on the existing level of lighting at the WWTF, the new lighting installed on the main electrical building and generator housing would not be expected to adversely affect nighttime views. As a result, the project would not create any new sources of substantial light or glare resulting in a **less than significant impact**.

3.2 Agriculture and Forestry Resources

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
II. AGRICULTURE AND FORESTRY 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) prepared by the California Dept. 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?	☐	☐	☐	☒

- a) ***Would the project 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 does not contain any Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, pursuant to the Farmland Mapping and Monitoring Program (FMMP). Although the City includes some land designated for agriculture or grazing, the project site itself is not located on or near agricultural land (City of Santa Cruz 2012). The FMMP designates the project site and surrounding area as Vacant or Disturbed Land (DOC 2023). Therefore, the project would have **no impact** on Farmland.

b) *Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?*

No Impact. The project site and vicinity do not contain any Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program (FMMP). The FMMP designates the project site and surrounding area as Vacant or Disturbed Land (DOC 2023). Additionally, the project site and surrounding area are not zoned for agricultural use and there are no Williamson Act contracts that apply to the site (DOC 2026). While agricultural and grazing lands exist within the City of Santa Cruz, they are situated well outside the project site boundaries and would not be directly or indirectly impacted by the project (City of Santa Cruz, 2012). Therefore, the project would not conflict with existing zoning for agricultural use or a Williamson Act contract and would have **no impact**.

c) *Would the project 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. No land in the City of Santa Cruz, including the project site, is zoned for forest land or timberland (City of Santa Cruz 2011). Therefore, the project would not conflict with existing zoning for forest land, timberland, or timberland zoned Timberland Production and would have **no impact**.

d) *Would the project result in the loss of forest land or conversion of forest land to non-forest use?*

No Impact. No forest land is located on or near the project site (City of Santa Cruz 2011). Therefore, the project would not result in a loss or conversion of forest land and would have **no impact**.

e) *Would the project 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. As previously discussed, no Farmland or forest land is located on or near the project site. Therefore, the project would not result in conversion of Farmland or forest land and would have **no impact**.

3.3 Air Quality

	Potentially Significant Impact	Less Than Significant Impact 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 upon to make the following determinations. 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?	☐	☐	☒	☐

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

No Impact. The U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) have established ambient air quality standards (AAQS) that are the maximum levels of ambient (background) air pollutants considered safe, with an adequate margin of safety to protect public health and welfare. Criteria pollutants include ozone (O₃), nitrogen dioxide (NO₂), carbon monoxide (CO), sulfur dioxide (SO₂), inhalable particulates (PM₁₀), fine particulates (PM_{2.5}), and lead (Pb). High O₃ levels are caused by the cumulative emissions of reactive organic gases (ROG) and nitrogen oxides (NO_x), which react under certain meteorological conditions to form O₃. In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants. An area is designated as “in attainment” when it is in compliance with the federal and/or state standards, as further discussed below.

The City of Santa Cruz is in the North Central Coast Air Basin (NCCAB), which is designated as a nonattainment area for state PM₁₀ standards and as unclassified or attainment for all other state and federal standards (CARB 2023; EPA 2025a). Regulatory oversight for air quality in the NCCAB rests at the regional level with the Monterey Bay Air Resources District (MBARD),¹ which prepares air quality plans to address attainment and/or maintenance of state and federal AAQS. These plans accommodate growth by projecting emissions based on different indicators, including population forecasts and by NCCAB-wide controls on stationary, area, and transportation sources of air pollution (MBARD 2008). The most recent Air Quality Management Plan (AQMP) for the Monterey Bay Region, the *2012-2015 Air Quality Management Plan* (2016 AQMP), was adopted in 2017. The 2016 AQMP relies on a multilevel partnership of federal,

¹ Formerly the Monterey Bay Unified Air Pollution Control District (MBUAPCD).

state, regional, and local governmental agencies. The 2016 AQMP builds on information developed in past AQMPs and updates the 2012 AQMP. The primary elements from the 2012 AQMP that were updated in the 2016 revision include air quality trends analysis, emission inventory, and mobile source programs (MBARD 2017).

As described in the MBARD 2008 CEQA Guidelines, project emissions that are not accounted for in the AQMP's emission inventory are considered a significant cumulative impact to regional air quality. The AQMP accommodates growth by projecting growth in emissions based on different indicators. For construction of a project, exhaust emissions are accounted for in the AQMP emissions inventory. For operations, population forecasts adopted by the Association of Monterey Bay Area Governments (AMBAG) are used to forecast population-related emissions. Thus, population-related emissions have been forecast in the AQMP using population forecasts adopted by AMBAG, and population-changing projects which are consistent with these forecasts are consistent with the AQMP.

Construction and operational emissions are presented below in Section 3.3(b) and were determined to be less than significant. In addition, the project would not result in an increase in population, as long-term operation and maintenance of the project would be performed by existing City staff and would not generate new employment. Based on the preceding considerations, construction and operation of the project would not conflict with or obstruct implementation of the AQMP, resulting in **no impact**.

b) *Would the project 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?*

Less-than-Significant Impact. The MBARD has established thresholds of significance for criteria air pollutants of concern for construction and operations (MBARD 2008). Construction projects using typical construction equipment such as dump trucks, scrapers, bulldozers, compactors and front-end loaders that temporarily emit other air pollutants, such as precursors of O₃ (i.e., ROG and NO_x), are accommodated in the emission inventories of State- and federally required air plans and would not have a significant impact on the California or national AAQS (MBARD 2008). Construction activities which directly generate 82 pounds per day or more of PM₁₀ would have a potentially significant impact on local air quality. For operations, a project would result in a significant impact if it results in the generation of emissions of, or in excess of, 137 pounds per day for ROG or NO_x, 550 pounds per day of CO, 150 pounds per day of sulfur oxide (SO_x), and 82 pounds per day of PM₁₀ from on-site sources.

Construction

Internal combustion engines used by construction equipment, trucks, and worker vehicles would result in emissions of ROG, NO_x, CO, PM₁₀, and PM_{2.5}. PM₁₀ and PM_{2.5}. Emissions would also be generated by entrained dust during demolition and construction. Air emissions were modeled for project construction using the California Emissions Estimator Model (CalEEMod) Version 2022.1.1.45. CalEEMod calculates maximum daily emissions for summer and winter periods. Table 3-1 depicts construction emissions associated with the project, and as shown, would not exceed the MBARD threshold for PM₁₀. As discussed previously, the project would use typical construction equipment and exhaust emissions of ROG and NO_x would be accommodated in the emissions inventories for State- and federal air plans for the NCCAB.

Table 3-1. Estimated Maximum Daily Construction Criteria Air Pollutant Emissions

Year	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
	Pounds per Day					
Summer						
2028*	0.56	4.30	7.18	0.01	0.41	0.17
2029	0.72	4.84	9.28	0.01	0.51	0.23
2030	0.12	0.07	1.10	0.00	0.21	0.05
Winter						
2028	0.74	5.08	9.39	0.01	0.52	0.24
2029	0.72	4.87	9.26	0.01	0.51	0.23
2030	0.12	0.09	1.08	0.00	0.21	0.05
Maximum Daily Emissions	0.74	5.08	9.39	0.01	0.52	0.24
MBARD Threshold	N/A	N/A	N/A	N/A	82	N/A
Threshold Exceeded?	N/A	N/A	N/A	N/A	No	N/A

Source: Appendix A

Notes: CO = carbon monoxide; MBARD = Monterey Bay Air Resources District; N/A = not applicable; NO_x = oxides of nitrogen; PM₁₀ = coarse particulate matter; PM_{2.5} = fine particulate matter; ROG = reactive organic gases; SO_x = sulfur oxides. The values shown are the maximum summer or winter daily emissions results from CalEEMod.

* This would be the earliest date construction would be initiated, which represents the worst-case scenario for criteria air pollutant emissions because equipment and vehicle emission factors for later years would be slightly less due to more stringent standards for in-use off-road equipment and heavy-duty trucks, as well as fleet turnover replacing older equipment and vehicles in later years.

Operations

For long-term operations, most sources associated with the project (i.e., mobile, area, energy, water/wastewater, solid waste, and refrigerants) would be the same as for the existing baseline WWTF operations and would not result in an increase in emissions. However, the project would include replacing three older diesel emergency generators (two 400 kW pre-Tier engines and one 1,000 kW pre-Tier engine) with a new 2.5 MW Tier 4 diesel emergency generator. For modeling purposes, the Tier 4 generator was assumed to operate up to 2 hours per day and 50 hours per year and the pre-Tier engines were assumed to operate up to 2 hours per day and 20 hours per year for maintenance and testing purposes, pursuant to CARB's Airborne Toxics Control Measure (ATCM) 93115. CalEEMod was used to model the routine maintenance and testing emissions of the project and existing emergency generators. Table 3-2 depicts the net change in operational emissions associated with the project as compared to existing conditions, and as shown, would result in a reduction in long-term emissions of O₃ precursors, PM₁₀, and PM_{2.5}, based on replacing older engines with a Tier 4 generator, which are the cleanest engines available.

Table 3-2. Estimated Maximum Daily Operational Criteria Air Pollutant Emissions

Year	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
	Pounds per Day					
Proposed Project						
Standby Generator	2.07	7.39	38.44	0.08	0.30	0.30

Table 3-2. Estimated Maximum Daily Operational Criteria Air Pollutant Emissions

Year	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
	Pounds per Day					
Existing Baseline						
Standby Generators	11.92	150.02	31.92	0.06	10.64	10.64
Net Change						
Net Change (Project – Existing)	(9.85)	(142.62)	6.52	0.02	(10.34)	(10.34)
MBARD Threshold	137	137	550	150	82	N/A
Threshold Exceeded?	N/A	N/A	N/A	N/A	No	N/A

Source: Appendix A

Notes: CO = carbon monoxide; MBARD = Monterey Bay Air Resources District; N/A = not applicable; NO_x = oxides of nitrogen; PM₁₀ = coarse particulate matter; PM_{2.5} = fine particulate matter; ROG = reactive organic gases; SO_x = sulfur oxides.

Values in parentheses represent negative numbers.

According to the MBARD CEQA Guidelines, projects that are consistent with the AQMP would not result in cumulative impacts, as the AQMP already accounts for regional emissions. The AQMP takes into account cumulative development within the City, and thus, cumulative emissions have been accounted for in the AQMP. As indicated above in criterion 3.3(a), the project would not conflict with the AQMP.

Based on the preceding considerations, project emissions would not 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, and the impact would be **less than significant**.

c) Would the project expose sensitive receptors to substantial pollutant concentrations?

Less-than-Significant Impact. Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases. The term “sensitive receptors” refers to facilities and structures where people who are sensitive to air pollution live or spend considerable amounts of time. Land uses where air pollution-sensitive individuals are most likely to spend time include schools and schoolyards (i.e., preschools and kindergarten through grade 12 schools), parks and playgrounds, daycare centers, nursing homes, hospitals, live in housing (i.e., prisons, dormitories, hospices, or similar), and residential communities (sensitive sites or sensitive land uses) (CARB 2005; MBARD 2008). The nearest sensitive residential receptors are located less than 200 feet away from the project site, along Bay Street.

Carbon Monoxide Hotspots

Traffic-congested roadways and intersections have the potential to generate localized high levels of CO. Localized areas where ambient concentrations exceed federal and/or state standards for CO are termed CO “hotspots.” CO transport is extremely limited and disperses rapidly with distance from the source. Under certain extreme meteorological conditions, however, CO concentrations near a congested roadway or intersection may reach unhealthy levels affecting sensitive receptors. Typically, high CO concentrations are associated with severely congested intersections operating at an unacceptable level of service (LOS) (LOS E or worse is unacceptable). Projects contributing to adverse traffic impacts may result in the formation of a

CO hotspot. Additional analysis of CO hotspot impacts would be conducted if a project would result in a significant impact or contribute to an adverse traffic impact at a signalized intersection that would potentially subject sensitive receptors to CO hotspots.

Title 40 of the Code of Federal Regulations, Section 93.123(c)(5), Procedures for Determining Localized CO, PM₁₀, and PM_{2.5} Concentrations (Hot-Spot Analysis), states that “CO, PM₁₀, and PM_{2.5} hot-spot analyses are not required to consider construction-related activities, which cause temporary increases in emissions. Each site which is affected by construction-related activities shall be considered separately, using established ‘Guideline’ methods. Temporary increases are defined as those which occur only during the construction phase and last five years or less at any individual site” (40 CFR 93.123). While project construction would involve on-road vehicle trips from trucks and workers during construction, construction activities would last less than five years and would not require a project-level construction hotspot analysis. Regarding long-term operations, the project would not result in increased vehicular trips to the existing roadway network. Therefore, the project would not expose sensitive receptors to substantial CO emissions, and the impact would be **less than significant**.

Toxic Air Contaminants

In addition to impacts from criteria pollutants, project impacts may include emissions of pollutants identified by the state as toxic air contaminants (TACs) or by the federal government as hazardous air pollutants (HAPs). State law has established the framework for California’s TAC identification and control program, which is generally more stringent than the federal program and aimed at TACs that are a problem in California. The state has formally identified more than 200 substances as TACs, including the federal HAPs. The greatest potential for TAC emissions during construction of the project would be diesel particulate matter (DPM) emissions from heavy equipment operations and heavy-duty trucks. CARB has adopted regulations to reduce DPM that apply to new trucks and diesel fuel, including the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, the In-Use Off-Road Diesel Vehicle Regulation, and the New Off-Road Compression-Ignition (Diesel) Engines and Equipment program. These regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel-powered equipment. CARB has adopted several ATCMs that reduce diesel emissions, including the following measures:

- ATCM for Diesel Particulate Matter from Portable Engines Rated 50 horsepower and greater (17 CCR 93116);
- ATCM to limit diesel-fueled commercial motor vehicle idling (13 CCR 2485);
- ATCM for In-Use Off-Road Diesel-Fueled Fleets (13 CCR 2449 et seq.); and
- ATCM for In-Use On-Road Diesel-Fueled Vehicles (13 CCR 2025).

Health effects from carcinogenic air toxics are usually described in terms of cancer risk. The MBARD recommends an incremental cancer risk threshold of 10 in 1 million, which indicates that a person has an additional risk of 10 chances in a million (0.001%) of developing cancer during their lifetime as a result of the air pollution scenario being evaluated. “Incremental cancer risk” is the net increased likelihood that a person continuously exposed to concentrations of TACs resulting from a project over a 9-, 30-, and 70-year exposure period will contract cancer based on the use of standard Office of Environmental Health Hazard Assessment (OEHHA) risk-assessment methodology (OEHHA 2015). In addition, some TACs have

noncarcinogenic effects. The MBARD recommends a Hazard Index of 1 or more for acute (short-term) and chronic (long-term) effects. The Hazard Index is the sum of the individual substance chronic or acute hazard indices for all TACs affecting the same target organ system.

As identified above, DPM would be emitted from heavy equipment operations and diesel-fueled trucks, which are subject to CARB ATCMs to reduce diesel particulate emissions. In addition, since the project would result in construction across multiple areas of the WWTF site, construction activity would not require the extensive use of heavy-duty construction equipment or diesel trucks in any one location over the duration of construction, which would limit the exposure of any proximate individual sensitive receptor to TACs. Finally, the project would result in decreased DPM emissions during long-term operations as compared to existing conditions based on replacing the older standby generators with a cleaner Tier 4 generator. Due to the short period of DPM exposure at any individual sensitive receptor during construction and the overall reduction in long-term DPM, TACs emitted by the project would not result in concentrations causing significant health risks. This impact would be **less than significant**.

d) *Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?*

Less-than-Significant Impact. Based on available information, the project is not anticipated to result in other emissions that have not been addressed under Sections 3.3(a) through 3.3(c), above. As such, this analysis focuses on the potential for the project to generate odors.

The occurrence and severity of potential odor impacts depend on numerous factors. The nature, frequency, and intensity of the source; the wind speeds and direction; and the sensitivity of receiving location each contribute to the intensity of the impact. Although offensive odors seldom cause physical harm, they can be annoying and cause distress among the public and generate citizen complaints.

The MBARD has identified typical land uses that generate odors as landfills, rendering plants, chemical plants, agricultural uses, wastewater treatment plants, and refineries (MBARD 2008). The project consists of upgrades and replacement of existing electrical infrastructure within the WWTF and would not increase treatment capacity. Therefore, odor impacts associated with the project would be **less than significant**.

3.4 Biological Resources

	Potentially Significant Impact	Less Than Significant Impact 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 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, regulations, or by the California Department of Fish and Wildlife or 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?	☐	☐	☐	☒

Dudek prepared a Biological Resources Technical Report (BRTR) for the project (Appendix B). The report included a literature and database review and a reconnaissance-level biological field survey conducted on January 26, 2026, within a 12.70-acre Biological Study Area (BSA) encompassing the 6.14-acre project footprint and a 100-foot survey buffer. The survey evaluated vegetation communities, wildlife habitat, aquatic resources, special-status species, sensitive natural communities, and habitat connectivity within and adjacent to the project area. The results of the BRTR are incorporated into the analyses contained herein.

- a) *Would the project 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 U.S. Fish and Wildlife Service?*

Less-than-Significant Impact with Mitigation Incorporated. Dudek prepared a BRTR for the project (Appendix B). Special-status species potentially occurring within the 12.70-acre Biological Study Area (BSA) were identified through database searches, literature review, and a reconnaissance-level field survey conducted on January 26, 2026.

The California Natural Diversity Database (CNDDDB) (CDFW 2026a), U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) system (USFWS 2026a), and California Native Plant Society (CNPS) Rare Plant Inventory (CNPS 2026) identified numerous special-status plant and wildlife species as occurring or potentially occurring within the BSA vicinity. Of the 40 special-status plant species initially identified, 38 were eliminated from further consideration due to the absence of suitable habitat, unsuitable soil conditions, or the BSA's location outside the species' known range. The remaining two species, robust spineflower (*Chorizanthe robusta* var. *robusta*) and Santa Cruz clover (*Trifolium buckwestiorum*), were determined unlikely to occur within the BSA and were not discussed further.

Similarly, 47 special-status wildlife species were identified as occurring or potentially occurring within the BSA vicinity. Twenty-nine species were eliminated from consideration due to the absence of suitable habitat or because the BSA is outside the species' known range. An additional 14 species were determined unlikely to occur within the BSA and were not discussed further. Monarch butterfly (*Danaus plexippus*), northwestern pond turtle (*Actinemys marmorata*), white-tailed kite (*Elanus leucurus*), and western red bat (*Lasiurus frantzii*) were determined to have the greatest potential to occur within or adjacent to the project area and are discussed below.

White-tailed Kite and Other Nesting Birds

If conducted during the nesting season (February 1 to August 31), project activities could impact nesting white-tailed kites or other nesting birds, if present in or adjacent to the project footprint. Tree trimming could result in direct impacts by destroying eggs or killing nestlings in active nests. Increased human activity and construction-generated noise and vibration near active nests could cause adults to abandon eggs or recently hatched young if they perceive such disturbances as a threat. Any construction activity that would result in destruction of active bird nests or disturbance of nesting activity to the extent that it causes nest abandonment would violate the federal MBTA and Sections 1503 and 3513 of the CFGC. The loss of white-tailed kite nests would have a substantial adverse effect on the local population because it would further contribute to population declines for this species. This impact would be **potentially significant**.

The project would implement **MM-BIO-1** to reduce impacts to nesting white-tailed kites and other native birds to **less than significant**.

MM-BIO-1: **Pre-Activity Surveys for Nesting Birds.** Prior to any construction activities scheduled during the bird nesting season (February 1 to August 31), a qualified wildlife biologist with demonstrated nest-searching experience will conduct pre-construction surveys for nesting birds, including white-tailed kite and other raptors. The pre-construction survey will occur no more than 7 days prior to the onset of ground-disturbing activities (including clearing, grubbing, and staging).

If active nests are found during the survey, the biologist will establish a no-disturbance buffer around the nest and mark the buffer perimeter with high-visibility fencing, flagging, or pin flags. The size of the buffer will be based on the species' sensitivity to disturbance and planned work activities in the vicinity; typical buffer sizes are 250 feet for raptors and 50 feet for passerines.

The no-disturbance buffer will remain in effect until the nest is no longer active. If a lapse in project-related activities of 15 days or longer occurs, another pre-construction survey will be conducted

Roosting Bats

The BSA provides suitable foraging and roosting habitat for foliage-roosting bat species, including western red bat. If project activities require the trimming of trees during peak activity timeframes when young or overwintering bats may be present (generally March through April and August through October), such activities could directly impact active bat roosts. The loss of roost sites for western red bat would be a substantial adverse effect because it could reduce survival and reproduction, leading to further population declines. This impact would be **potentially significant**.

The project would implement **MM-BIO-2** to reduce impacts on foliage-roosting bats to **less than significant**.

MM-BIO-2: **Pre-Activity Surveys for Roosting Bat.** If tree trimming is scheduled to begin during the peak activity timeframes (from March to April and August to October, then within 2 weeks prior to tree trimming), a qualified biologist will examine trees to be trimmed for suitable bat roosting habitat. High-quality habitat features (e.g., large tree cavities, basal hollows, loose or peeling bark, larger snags) will be identified, and the area around these features searched for bats and bat sign (e.g., guano, culled insect parts, staining). Riparian woodland and stands of mature broadleaf trees will be considered potential habitat for solitary foliage roosting bat species.

If bat sign is detected, biologists will conduct an evening visual emergence survey of the source habitat feature, from a half hour before sunset to 1–2 hours after sunset for a minimum of 2 nights within the season that construction would be taking place. Night-vision goggles and/or full-spectrum acoustic detectors will be used during emergence surveys to assist in species identification. All emergence surveys will be conducted during favorable weather conditions (calm nights with temperatures conducive to bat activity and no precipitation predicted).

If a potentially active bat roost is identified within a tree proposed for trimming, passive monitoring with full-spectrum bat detectors will be used to assist in determining species present. A minimum of 4 nights of acoustic monitoring surveys will be conducted within the season that construction would be taking place. If site security allows, detectors should be set to record bat calls for the duration of each night. To the extent possible, all monitoring will be conducted during favorable weather conditions (calm nights with temperatures conducive to bat activity and no precipitation predicted). The biologists will analyze the bat call data using appropriate software and prepare a report that will be submitted to the City and CDFW.

Additional avoidance and minimization measures may be necessary if it is determined that bats are using the trees as roost sites or if sensitive bat species are detected during acoustic monitoring. Appropriate measures will be determined in coordination with CDFW and may include any combination of the measures listed below.

- If a maternity roost is located, whether solitary or colonial, that roost will remain undisturbed with a buffer, as determined by a qualified biologist, until September 15 or until the biologist has determined that the roost is no longer active.
- If a non-maternity roost in a tree is found, every effort should be made to avoid the roost, as methods to evict bats from trees are largely untested.
- If a non-maternity roost is found within trees that cannot be avoided, eviction will be attempted using procedures designed, in consultation with CDFW, to reduce the likelihood of mortality of evicted bats. In all cases, the following stipulations will be observed.
 - Eviction will not occur before September 15 and will match the timeframe for tree trimming approved by USFWS and CDFW for nesting birds and other sensitive wildlife.
 - Qualified biologists will carry out or oversee the eviction tasks and will monitor the tree trimming.
 - Eviction will take place late in the day or in the evening to reduce the likelihood of evicted bats falling prey to diurnal predators.
 - Eviction will take place during weather and temperature conditions conducive to bat activity.
- Non-injurious harassment at the roost site, such as ultrasound deterrents or other sensory irritants, may be used to encourage bats to leave on their own
- Prior to tree trimming and after other eviction efforts have been attempted, any confirmed roost site will be gently shaken or repeatedly struck with a heavy implement such as a sledgehammer or an ax; several minutes should pass before trimming limbs to allow bats time to arouse and leave the roost. The biologists will search downed vegetation for dead and injured bats. The presence of dead or injured bats will be reported to CDFW. Injured bats will be transported to the nearest CDFW-permitted wildlife rehabilitation facility.

Monarch Butterfly

The BSA contains one large eucalyptus tree suitable for overwintering monarchs and is within 0.5 miles of a core monarch clustering area near the northeast corner of Lighthouse Field State Beach (Appendix B). The trimming of this tree, if needed, is not likely to adversely affect monarch overwintering habitat, as the known overwintering grove at Lighthouse Field will not be affected, and monarchs have not been observed overwintering in this tree in the past. No signs of native milkweed or substantial patches of nectar plants were observed within the BSA during the field survey, so potential nectar sources for overwintering monarchs will not be impacted by the project. Given the project's distance from core monarch overwintering habitat at Lighthouse Field and lack of impacts to nectar sources, significant impacts to overwintering monarch habitat is unlikely. However, there is potential for overwintering monarchs to roost in the

eucalyptus tree between October and March, and individual monarchs could be impacted through direct injury or mortality from potential tree trimming, if present. The loss of individual monarch butterflies from the population wintering in Santa Cruz County would have a substantial adverse effect as it would further contribute to population declines of this species. This impact would be **potentially significant**.

The project would implement **MM-BIO-3** to reduce impacts to overwintering monarchs to **less than significant**.

MM-BIO-3: Pre-Activity Surveys for Monarchs. The project will implement the following measures to reduce impacts to overwintering monarchs.

- Any trimming of the eucalyptus tree will occur outside of the monarch overwintering period (October through March), to the extent feasible.
- If trimming must occur between October and March, a qualified biologist will survey the tree no earlier than 1 week prior to tree trimming to determine if any monarch butterflies are present. If monarchs are present, the qualified biologist will establish a no-disturbance buffer around the tree and mark the buffer perimeter with high-visibility fencing, flagging, or pin flags. The size of the buffer will be based on the height of the occupied tree and size of the overwintering group.
- The no-disturbance buffer will remain in effect until the monarchs have dispersed for migration and the tree is no longer in use for overwintering.

Northwestern Pond Turtle

The BSA is adjacent to Neary Lagoon, which supports a known population of northwestern pond turtles (Appendix B). Neary Lagoon provides suitable aquatic habitat for pond turtles, and the surrounding live oak woodland habitat provides suitable upland aestivation and nesting habitat. However, project construction would not impact aquatic habitat in Neary Lagoon or undeveloped upland habitat adjacent to Neary Lagoon. The project will take place within the already developed WWTF, which is surrounded by a retaining wall or chain-link security fencing that impedes turtle access to the site. Therefore, project construction is not likely to adversely affect northwestern pond turtle aquatic or upland habitat and would have **no impact** on northwestern pond turtle.

- b) *Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?***

Less-than-Significant Impact with Mitigation Incorporated. The BSA contains one sensitive natural community recognized by the California Department of Fish and Wildlife (CDFW): arroyo willow thickets. The arroyo willow thicket occurs in the southeastern portion of the BSA between the project boundary fence and the Southern Pacific Railroad alignment (CDFW 2026b). The project would primarily occur within the existing developed footprint of the WWTF and would avoid sensitive natural communities. Therefore, the project as currently designed would not impact sensitive natural communities.

However, if during construction it becomes apparent that the 21-kV conduit connecting Substation 4A to the main switchgear must be trenched or placed aboveground along the southern perimeter fence within the arroyo willow thicket, construction activities could directly impact sensitive habitat through grubbing, grading, trenching, and staging activities. Such impacts could be **potentially significant**.

The project would implement **MM-BIO-4** to reduce impacts to riparian habitat and sensitive natural communities to **less than significant**.

MM-BIO-4: **Arroyo Willow Thicket Avoidance and Restoration**. The project will implement the following measures to avoid or reduce impacts to sensitive natural communities:

- All mature live trees within the arroyo willow thicket will be completely avoided during vegetation removal activities.
- Prior to ground disturbance, a qualified biologist or restoration specialist will prepare a restoration and revegetation plan to address temporary impacts on the arroyo willow thicket. The restoration and revegetation plan would outline, at a minimum:
 - Procedures for documenting pre-construction conditions for restoration purposes
 - Sources of plant materials and methods of propagation
 - Specification of parameters for maintenance and monitoring of the restored arroyo willow thicket, including weed control measures, frequency of field checks, and monitoring reports
 - Specification of success criteria for re-plantings
 - Specification of the remedial measures to be taken if success criteria are not met
 - Maintenance, monitoring, and reporting schedules, including an annual report due to the City by January 31st of the following year
- After construction is complete, temporarily disturbed areas will be revegetated with arroyo willow using appropriate and well-documented techniques (e.g., live-staking of dormant branches). Branches will be obtained from nearby mature willows.

c) ***Would the project 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. As discussed in the BRTR, the BSA contains a small portion of Neary Lagoon, a freshwater aquatic feature that may be subject to the jurisdiction of the U.S. Army Corps of Engineers, Regional Water Quality Control Board, California Department of Fish and Wildlife, and California Coastal Commission (Appendix B). However, Neary Lagoon is located outside of the project footprint and no work would occur within the lagoon or any other wetland or aquatic resource.

Project activities would occur within the existing developed footprint of the WWTF and would not result in direct removal, filling, hydrologic interruption, or other disturbance of state or federally protected wetlands or waters. Therefore, the project would have **no impact** on state or federally protected wetlands or other jurisdictional aquatic resources.

- d) ***Would the project 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?***

Less-than-Significant Impact with Mitigation Incorporated. As discussed in the BRTR, the project would occur within an existing developed wastewater treatment facility that does not currently provide habitat connectivity. Although Neary Lagoon adjacent to the project site provides habitat connectivity for local wildlife, the project would not affect the lagoon or associated movement corridors. Therefore, the project would have no impact on fish or wildlife movement or established wildlife corridors.

The BSA contains trees that could provide wildlife nursery sites, including nesting habitat for native birds and roosting habitat for bats. Tree trimming during the bird nesting season or bat maternity season could result in nest failure, offspring mortality, or disturbance of active nests or maternity roosts. Such impacts would be **potentially significant**.

Implementation of MM-BIO-1 and MM-BIO-2 (see Section 3.4(a)) would ensure that active nests and bat roosts are identified and avoided during project construction. With implementation of mitigation measures, impacts to wildlife nursery sites would be reduced to **less than significant**.

- e) ***Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?***

No Impact. As discussed in the BRTR, the project proposes to potentially place a section of the 21 kV conduit within the arroyo willow thicket on the east side of the Maintenance Building. Removal of trees within the arroyo willow thicket has potential to remove heritage trees as defined under Chapter 9.56 of the City's Municipal Code (Appendix B). MM-BIO-4 for sensitive natural communities (see Section 3.4 (b)) require that all mature trees within the arroyo willow thicket be completely avoided. With the implementation of these measures, the project would not conflict with local policies or ordinances and there would be **no impact**.

- f) ***Would the project 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 City's Operations & Maintenance (O&M) Habitat Conservation Plan (HCP) applies broadly to the operation, maintenance, and rehabilitation of the City's water system and municipal facilities. The WWTF is a municipal facility, and its routine operations and maintenance fall under the City's O&M HCP Incidental Take Permit. The project has been designed by the City to be consistent with the conservation strategies and objectives of the O&M HCP. Therefore, the project would not conflict with provisions of the O&M HCP. There are no other approved local, regional, or state habitat conservation plans in the vicinity. Therefore, the project would have **no impact** on any such plans.

3.5 Cultural Resources

	Potentially Significant Impact	Less Than Significant Impact 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) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

An Archaeological Inventory Report and Built Environment Inventory and Evaluation Report were completed for the project in September 2026 (Appendix C; Appendix D). The Archaeological Inventory Report included a records search of the California Historical Resources Information System (CHRIS) from the Northwest Information Center (NWIC) conducted for the project area and a 0.5-mile study buffer, a Native American Heritage Commission (NAHC) Sacred Lands File (SLF) search, Native American outreach, initiation of AB 52 consultation, an intensive pedestrian survey, and archaeological auger testing. The Built Environment Study evaluated the WWTF, including buildings and structures within the project area, for eligibility under the National Register of Historic Places (NRHP), California Register of Historical Resources (CRHR), and City of Santa Cruz Historic Resources Inventory (CSCHRI). The area of direct impact includes the project footprint and all areas where construction, staging, access, or related activities could disturb soils or affect existing built features, including portions of the City WWTF, La Barranca Park, and areas where trenching or related ground disturbance may occur. The results of the Archaeological Inventory Report and Built Environment Study are incorporated into the analyses contained herein.

a) *Would the project cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?*

No Impact. A Built Environment Inventory and Evaluation Report was prepared for the project (Appendix D). The study evaluated the WWTF for eligibility under the NRHP, CRHR, and CSCHRI. The WWTF was previously evaluated in 2017 and determined ineligible for listing in the NRHP and CRHR. The State Historic Preservation Officer concurred with that determination. As part of the current study, Dudek updated the evaluation and assessed the facility under CSCHRI criteria. The study concluded that the WWTF does not meet any NRHP, CRHR, or CSCHRI eligibility criteria and is not a historical resource for purposes of CEQA.

The project would remove the existing maintenance building and construct new electrical infrastructure within the WWTF. Because the WWTF is not a historical resource pursuant to CEQA Guidelines Section 15064.5, implementation of the project would not cause a substantial adverse change in the significance of a historical resource. Therefore, the project would have **no impact**.

b) *Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?*

Less-than-Significant Impact with Mitigation Incorporated. An Archaeological Inventory Report was prepared for the project (Appendix C). The report included a records search, SLF search, Native American outreach, archaeological survey, and subsurface auger testing. Although archaeological resources have previously been recorded in the broader project vicinity, no archaeological materials were identified within the project area during survey or subsurface testing. In addition, no contributing elements or cultural deposits associated with previously recorded archaeological resources were identified within proposed disturbance areas.

Because the project includes excavation and other ground-disturbing activities, there remains a possibility that previously unidentified archaeological resources could be encountered during construction. Disturbance of an undiscovered archaeological resource could result in a potentially significant impact.

Implementation of MM-CUL-1 and MM-CUL-2 would ensure that construction personnel are trained regarding the potential for archaeological resources and that appropriate identification, evaluation, and treatment procedures are implemented if archaeological resources or human remains are encountered during construction. With implementation of **MM-CUL-1** and **MM-CUL-2**, impacts to archaeological resources would be reduced to **less than significant**.

MM-CUL-1: Worker Environment Awareness Training. Cultural Resources Worker Environmental Awareness Training would be required for all personnel involved in ground-disturbing work. Training should be completed before personnel begin such work and should summarize the cultural sensitivity of the project vicinity, types of archaeological materials that could be encountered, confidentiality requirements for cultural resource locations, stop-work procedures, and notification protocols. The City or its contractor should document attendance and each participant's acknowledgment of the stop-work and notification procedures.

MM-CUL-2: Inadvertent Discovery Protocols for Cultural Resources and Human Remains. If cultural resources are encountered during project implementation, the contractor shall immediately stop work within a reasonable distance sufficient to protect the discovery, initially 50 feet unless adjusted by a qualified archaeologist, and notify the City and qualified archaeologist. The archaeologist shall evaluate the discovery and recommend appropriate treatment. Work within the protected area may resume only after the City, in consultation with the qualified archaeologist, authorizes it. If human remains are discovered, all work shall cease in the vicinity, the remains and associated materials shall be protected from further disturbance, and the Santa Cruz County Coroner shall be notified in accordance with California Health and Safety Code Section 7050.5. If the coroner determines that the remains are Native American, the coroner shall notify the Native American Heritage Commission, and the procedures in Public Resources Code Section 5097.98, including consultation with the Most Likely Descendant, shall be followed.

c) **Would the project disturb any human remains, including those interred outside of formal cemeteries?**

Less-than-Significant Impact with Mitigation Incorporated. As discussed above under Section 3.5(b), no archaeological resources or human remains were identified within the project area during records searches, archaeological survey, or subsurface testing (Appendix C). Although the potential for encountering human remains is low, ground-disturbing activities associated with the project could uncover previously unidentified human remains. Disturbance of human remains would constitute a **potentially significant impact**.

Implementation of **MM-CUL-2** would ensure that any human remains encountered during construction are treated in accordance with California Health and Safety Code Section 7050.5 and Public Resources Code Section 5097.98. With implementation of **MM-CUL-2**, impacts related to the inadvertent discovery of human remains would be reduced to **less than significant**.

3.6 Energy

	Potentially Significant Impact	Less Than Significant Impact 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?	☐	☐	☒	☐

a) **Would the project 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. Petroleum would be the primary energy resource consumed throughout construction of the project to fuel off-road equipment, trucks, and worker vehicles. There are no unusual project characteristics or construction processes that would require the use of equipment that would be more energy intensive than is used for comparable activities, or equipment that would not conform to current emissions standards (and related fuel efficiencies). Equipment employed in construction of the project would therefore not result in inefficient, wasteful, or unnecessary consumption of fuel. Construction contractors would be required to comply with applicable CARB regulations regarding retrofitting, repowering, or replacement of diesel off-road construction equipment, which were discussed previously for criterion 3.3(c). Compliance with anti-idling and emissions regulations would result in a more efficient use of construction-related energy. Idling restrictions and the use of newer engines and equipment would result in less fuel combustion and energy consumption. Once construction is complete, long-term operations and energy demand would be similar to existing conditions. Based on the preceding considerations, the project-related impacts regarding the potential for wasteful, inefficient, or unnecessary consumption of energy resources would be **less than significant**.

b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less-than-Significant Impact. Part 6 of Title 24 of the California Code of Regulations establishes energy efficiency standards for residential and non-residential buildings constructed in California to reduce energy demand and consumption. Part 6 is updated periodically (every 3 years) to incorporate and consider new energy efficiency technologies and methodologies. Title 24 also includes Part 11, the California Green Building Standards Code (CALGreen). CALGreen institutes mandatory minimum environmental performance standards for all ground-up new construction of residential, commercial, educational, healthcare, and state-owned buildings. The new electrical building would meet all applicable Title 24 and CALGreen standards to reduce energy demand and increase energy efficiency. In addition, the project would implement modern electrical systems and controls, including integration of safety features and power monitoring into new equipment, which would support long-term operational efficiency of the WWTF. Overall, the project would not conflict or obstruct a state or local plan for renewable energy or energy efficiency. This impact would be **less than significant**.

3.7 Geology and Soils

	Potentially Significant Impact	Less Than Significant Impact 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 Division of Mines and Geology 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?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

a) ***Would the project 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 Division of Mines and Geology Special Publication 42.***

Less-than-Significant Impact. The Alquist-Priolo Earthquake Fault Zoning Act of 1972 regulates development near Holocene-active faults (i.e., faults that have moved in the past 11,700 years) to mitigate the hazard of surface fault rupture. This Act requires the State Geologist to delineate regulatory zones (known as Alquist-Priolo Earthquake Fault Zones) around the surface traces of Holocene-active faults and to issue appropriate maps. According to the Geotechnical Engineering report prepared by Earth Systems Pacific, the nearest regional fault is the Reliz Fault, located approximately 4.6 miles southwest of the site (Earth Systems Pacific 2023). The San Andreas Fault, which is capable of generating major regional earthquakes, is located approximately 12.1 miles northeast of the site (Earth Systems Pacific 2023). Although seismic activity associated with these faults could result in ground shaking at the project site, the distance of the faults from the project area indicates a low potential for surface fault rupture at the site. Therefore, impacts related to rupture of a known earthquake fault would be **less than significant**.

ii) ***Strong seismic ground shaking?***

and

iii) ***Seismic-related ground failure, including liquefaction?***

Less-than-Significant Impact. The project site is located in a seismically active region of California with several active and potentially active faults capable of generating strong ground shaking. According to the geotechnical investigation prepared for the WWTF, the primary seismic risks at the site are associated with earthquakes generated by the Zayante-Vergeles, Reliz, San Andreas, and Calaveras faults, with the

Zayante-Vergeles Fault having the greatest potential to generate severe seismic shaking at the project site (Earth Systems Pacific 2023).

Ground shaking may cause liquefaction of saturated subsurface soils. Liquefaction occurs when loose, saturated soils temporarily lose strength during strong seismic shaking, potentially resulting in ground settlement or other forms of ground failure. The City of Santa Cruz General Plan identifies the project site as being located in an area of very high liquefaction potential (City of Santa Cruz 2012). However, the geotechnical investigation concluded that the potential for liquefaction to significantly affect the proposed improvements is low (Earth Systems Pacific 2023). Although soil layers deeper than 70 feet below ground surface were identified as potentially liquefiable, the report determined that the substantial separation between these soils and the proposed improvements, combined with intervening clayey soils and soil arching effects, would minimize the potential for liquefaction-related impacts.

While the project site is located within a region subject to seismic hazards, implementation of the project would not increase the risk of strong seismic ground shaking or seismic-related ground failure beyond existing conditions. The project consists of upgrades and replacement of electrical infrastructure within an existing wastewater treatment facility and would not introduce new sensitive land uses.

Design and construction of the project would conform to applicable geotechnical recommendations and current seismic design standards, including the 2025 California Building Code (CBC) and applicable state and local regulations. Compliance with these standards would minimize the potential for damage to project facilities and reduce safety risks associated with seismic ground shaking and related hazards, including liquefaction. Accordingly, impacts related to seismic-related ground failure, including liquefaction, would be **less than significant**.

iv) Landslides?

Less-than-Significant Impact. Landslides occur when masses of soil, rock, or debris move downslope due to gravity and are generally associated with steep slopes or unstable hillside conditions. The project is located within the existing WWTF, which is situated in a developed, relatively level area. The geotechnical investigation prepared for the project did not identify landslides as a primary geotechnical concern at the site. Instead, the primary geotechnical concerns include strong seismic shaking, static settlement, excavations adjacent to existing structures and improvements, shallow groundwater, soil corrosion potential, liquefaction potential, undocumented fill, and soil expansion potential (Earth Systems Pacific 2023).

Construction activities would include excavation, trenching, foundation installation, and other ground-disturbing activities; however, these activities would occur in accordance with project-specific geotechnical recommendations and applicable requirements of the California Building Code (CBC). In addition, any temporary excavations would be designed and constructed in accordance with applicable safety and shoring requirements. Because the project site is not located on a steep slope, landslide conditions are not identified as a significant geotechnical hazard, and compliance with geotechnical recommendations would minimize potential slope instability hazards, and therefore the project would not expose people or structures to substantial risks from landslides. Impacts related to landslides would be **less than significant**.

b) *Would the project result in substantial soil erosion or the loss of topsoil?*

Less-Than-Significant Impact. Construction of the proposed project would involve demolition, excavation, trenching, grading, foundation construction, and utility installation activities within the WWTF. Project construction would disturb approximately 40,400 square feet (0.93 acre) of the project site, which could temporarily expose soils to erosion by wind or stormwater runoff. Excavated material would be reused on-site where feasible or removed for appropriate disposal. Backfilled areas would be compacted in accordance with project geotechnical recommendations, and disturbed areas would be restored following construction. Although construction activities would temporarily disturb soil, the project site is generally developed and previously disturbed and would not require extensive grading or alteration of natural landforms. Construction activities would comply with applicable City requirements and erosion and sediment control best management practices (BMPs) to minimize erosion and sediment transport. Therefore, the project would not result in substantial soil erosion or loss of topsoil. Impacts would be **less than significant**.

c) *Would the project 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. The project site is located within a seismically active region and would be subject to strong ground shaking during the lifetime of the proposed project. According to the geotechnical investigation prepared for the project, the primary geotechnical concerns at the site include strong seismic shaking, static settlement, excavations adjacent to existing structures and improvements, shallow groundwater, soil corrosion potential, liquefaction potential, undocumented fill, and soil expansion potential (Earth Systems Pacific 2023).

The City of Santa Cruz General Plan identifies the project site as being within an area of very high liquefaction potential. However, the geotechnical investigation concluded that the potential for liquefaction to significantly affect the proposed improvements is low because the potentially liquefiable soils occur at depths greater than approximately 70 feet below ground surface and are separated from the proposed improvements by substantial thicknesses of clayey soils (Earth Systems Pacific 2023). The geotechnical investigation also concluded that the site is suitable for the proposed improvements provided the recommendations contained in the report are incorporated into project design and construction.

Construction activities would include excavation, trenching, foundation installation, and equipment replacement. All grading, excavation, and construction activities would be performed in accordance with project-specific geotechnical recommendations and current requirements of the California Building Code. Compliance with these recommendations would ensure proper soil stability, compaction, structural support, and excavation safety, thereby minimizing the potential for landslides, lateral spreading, subsidence, liquefaction, or collapse.

Therefore, 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, and impacts related to geologic or soil instability would be **less than significant**.

- d) ***Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?***

No Impact. Expansive soils are soils that exhibit significant volume change with variations in moisture content and can pose risks to structures and infrastructure if not properly addressed. According to the geotechnical engineering report, soils are considered to have very low expansion potential (Earth Systems Pacific 2023).

The project includes construction of a new main electrical building, installation of replacement substations and electrical equipment, underground duct banks and conduits, and other associated infrastructure improvements. Because onsite soils are not considered expansive, and all project improvements would be designed and constructed in accordance with applicable geotechnical recommendations and building standards, expansive soils would not create substantial direct or indirect risks to life or property. Therefore, the project would have **no impact** related to expansive soils.

- e) ***Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?***

No Impact. The project consists of electrical infrastructure upgrades and related improvements within the existing WWTF, which would continue to collect and treat wastewater through existing treatment processes. Because the project does not rely on onsite wastewater disposal systems, soil suitability for septic tanks or alternative wastewater disposal systems is not relevant to the project. Therefore, the project would have **no impact** related to soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems.

- f) ***Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?***

Less-than-Significant Impact with Mitigation Incorporated. According to the City of Santa Cruz General Plan 2030 EIR, paleontologically sensitive geologic units occur within portions of the City, including geologic units that have produced vertebrate fossil specimens elsewhere in the area (City of Santa Cruz 2012). Geological mapping indicates that the project site is primarily underlain by Holocene basin deposits, with portions of the site underlain by the Purisima Formation and overlain by Pleistocene marine terrace deposits (Dudek 2026).

Implementation of the project would require excavation for underground electrical distribution lines, duct banks, substations, building foundations, utility improvements, and other associated infrastructure. Excavation depths are anticipated to range from approximately 2 to 6 feet below ground surface. Although most work would occur within the developed footprint of the existing WWTF, ground-disturbing activities could encounter previously undiscovered paleontological resources. While no known fossil localities have been identified within the project site, significant fossil resources have been documented in nearby Pleistocene marine terrace deposits and the Purisima Formation (Dudek 2026). As a result, construction activities have the potential to damage or destroy a unique paleontological resource. Therefore, impacts would be **potentially significant**.

Implementation of **MM-GEO-1** would require preparation of a Paleontological Resources Mitigation and Monitoring Program, worker environmental awareness training, paleontological monitoring of ground-disturbing activities in sensitive geologic units, and appropriate treatment, recovery, documentation, and curation of any paleontological resources encountered during construction. With implementation of **MM- GEO-1**, impacts to paleontological resources would be reduced to **less than significant**.

MM-GEO-1: **Paleontological Resources Mitigation and Monitoring Program and Paleontological Monitoring.** Prior to commencement of any grading activity on site, the City shall retain a qualified paleontologist per the most current Society of Vertebrate Paleontology (SVP) guidelines. The qualified paleontologist shall prepare a Paleontological Resources Mitigation and Monitoring Program (PRMMP) for the project that is consistent with the most current SVP guidelines that outlines requirements for preconstruction meeting attendance and worker environmental awareness training; where paleontological monitoring is required within the project site based on construction plans and/or geotechnical reports; procedures for adequate paleontological monitoring and discoveries treatment; and paleontological methods (including sediment sampling for microinvertebrate and microvertebrate fossils), reporting, and collections management. A qualified paleontological monitor shall be on site during ground-disturbing activities (including augering) below a depth of five feet below the ground surface in areas underlain by Holocene basin deposits to determine if they are old enough to preserve scientifically significant paleontological resources. Full-time paleontological monitoring is required in areas underlain by the Purisima Formation and Pleistocene marine terrace deposits, if encountered.

In the event that paleontological resources (e.g., fossils) are unearthed during grading, the paleontological monitor will temporarily halt and/or divert grading activity to allow recovery of paleontological resources. The area of discovery will be roped off with a 50-foot radius buffer. Once documentation and collection of the find is completed, the monitor will allow grading to recommence in the area of the find. Upon completion of the monitoring program, a final paleontological monitoring report shall be submitted to the City of Santa Cruz and in the case of fossil recovery, the accredited fossil repository (e.g., the Santa Cruz Museum of Natural History). Costs associated with laboratory work and curation fees are the responsibility of the City.

3.8 Greenhouse Gas Emissions

	Potentially Significant Impact	Less Than Significant Impact 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?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

a) *Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?*

Less-than-Significant Impact. Climate change refers to any significant change in measures of climate, such as average temperature, precipitation, or wind patterns over a period of time. Climate change may result from natural factors, natural processes, and human activities that change the composition of the atmosphere and alter the surface and features of the land. Significant changes in global climate patterns have recently been associated with global warming, an average increase in the temperature of the atmosphere near the Earth's surface, attributed to accumulation of greenhouse gas (GHG) emissions in the atmosphere. Greenhouse gases trap heat in the atmosphere, which in turn heats the surface of the Earth. Some GHGs occur naturally and are emitted to the atmosphere through natural processes, while others are created and emitted solely through human activities. The most common GHG that results from human activity is carbon dioxide (CO₂), followed by methane (CH₄) and nitrous oxide (N₂O).

Gases in the atmosphere can contribute to climate change both directly and indirectly. Direct effects occur when the gas itself absorbs radiation. Indirect radiative forcing occurs when chemical transformations of the substance produce other GHGs, when a gas influences the atmospheric lifetimes of other gases, and/or when a gas affects atmospheric processes that alter the radiative balance of the Earth (e.g., affect cloud formation or albedo) (EPA 2025b). The Intergovernmental Panel on Climate Change (IPCC) developed the global warming potential (GWP) concept to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP of a GHG is defined as the ratio of the time-integrated radiative forcing from the instantaneous release of 1 kilogram of a trace substance relative to that of 1 kilogram of a reference gas (IPCC 2014). The reference gas used is CO₂; therefore, GWP-weighted emissions are measured in metric tons (MT) of CO₂ equivalent (CO₂e). The current version of CalEEMod assumes that the GWP for CH₄ is 25 (so emissions of 1 MT of CH₄ are equivalent to emissions of 25 MT of CO₂), and the GWP for N₂O is 298, based on the IPCC Fourth Assessment Report (IPCC 2007). The GWP values identified in CalEEMod were applied to the project.

As indicated in Section 3.3(b), for long-term operations, most sources associated with the project (i.e., mobile, area, energy, water/wastewater, solid waste, and refrigerants) would be the same as for the existing baseline WWTF operations and would not result in an increase in emissions. However, the project would include replacing three older diesel emergency generators with a new 2.5 MW Tier 4 diesel emergency generator. As the primary source of emissions associated with the project would be these standby emergency generators, MBARD's GHG significance threshold of 10,000 MT CO₂e for stationary source projects (MBARD 2016) has been applied herein. Construction of the project would also result in GHG emissions, which are primarily associated with use of off-road construction equipment, on-road trucks, and worker vehicles.

Project GHG emissions were calculated as part of the CalEEMod air emissions modeling, and results for construction and operational emissions are summarized in Tables 3-3 and 3-4, respectively. In addition, GHG emissions from the routine testing and maintenance of the existing standby generators were also estimated. The annual net change in operational GHG emissions plus amortized construction emissions would total approximately 68 metric tons per year of CO₂e, as shown in Table 3-4, which would not exceed the MBARD GHG threshold for stationary sources. This impact would be **less than significant**.

Table 3-3. Estimated Annual Construction Greenhouse Gas Emissions

	CO ₂	CH ₄	N ₂ O	R	CO ₂ e
Year	Metric Tons per Year				
2028	78.51	<0.01	<0.01	0.03	79.23
2029	84.34	<0.01	<0.01	0.03	84.92
2030	8.23	<0.01	<0.01	0.01	8.36
Total	171.07	<0.01	<0.01	0.06	172.51
<i>Annualized Emissions over 30 years (metric tons per year)</i>					5.75

Source: Appendix A.

Notes: CO₂ = carbon dioxide; CH₄ = methane; N₂O = nitrous oxide; R= refrigerant; CO₂e = carbon dioxide equivalent. “<0.01” means that value is less than 0.01 metric tons per year. Total emissions may not sum due to rounding.

Table 3-4. Estimated Annual Operational Greenhouse Gas Emissions

Source	CO2	CH4	N2O	R	CO2e
	Metric Tons per Year				
Proposed Project					
Stationary	87.45	<0.01	<0.01	0.00	87.75
Existing Baseline					
Stationary	25.17	<0.01	<0.01	0.00	25.26
Net Change					
Net Change (Project – Existing)	62.28	<0.01	<0.01	0.00	62.49
Amortized Construction Emissions					5.75
Total Net Operations with Amortized Construction Emissions					68.24

Source: Appendix A.

Notes: CO₂ = carbon dioxide; CH₄ = methane; N₂O = nitrous oxide; R= refrigerant; CO₂e = carbon dioxide equivalent. “<0.01” means that value is less than 0.01 metric tons per year. Total emissions may not sum due to rounding.

- b) **Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?**

Less-than-Significant Impact. California has adopted significant GHG reduction targets and strategies. The California State Legislature passed Assembly Bill (AB) 32 to provide initial direction to limit California’s GHG emissions to 1990 levels by 2020 and initiate the state’s long-range climate objectives. Since the passage of AB 32, the state has adopted GHG emissions reduction targets for future years beyond the initial 2020 horizon year, including those established by Senate Bill (SB) 32 and AB 1279, which require GHG emissions be reduced to 40% below 1990 levels by 2030, and 85% below 1990 levels by 2045,

respectively. In addition, AB 1279 requires the state to achieve net zero GHG emissions by no later than 2045 and achieve and maintain net negative GHG emissions thereafter. CARB's 2017 Scoping Plan was the first to address the state's strategy for achieving the 2030 GHG reduction target set forth in SB 32 (CARB 2017), and the most recent CARB 2022 Scoping Plan update outlines the state's plan to reduce emissions and achieve carbon neutrality by 2045 in alignment with AB 1279 and assesses the progress made toward the 2030 SB 32 target (CARB 2022).

The City's *General Plan 2030* includes goals, policies, and actions on climate change, including reducing communitywide GHG emissions 30% by 2020, reducing communitywide GHG emissions 80% by 2050 (compared to 1990 levels), and for all new buildings to be emissions neutral by 2030. In September 2022, the City adopted the *2030 Climate Action Plan* (CAP) that updated the previous CAP and outlines measures and actions that are intended to reduce GHG emissions, per capita, by approximately 40% below 1990 levels by 2030, meeting the SB 32 target for 2030 to reduce total GHG emissions 40% below 1990 levels. The CAP also seeks to achieve a carbon neutrality goal by the year 2035 prior to the State's target carbon neutrality goal by 2045 (City of Santa Cruz 2022). The CAP includes 31 measures with 152 associated individual actions, intended to reduce GHG emissions throughout the City. The measures include those related to building energy use and reduction, transportation, public infrastructure, and other climate restoration and sustainable government measures. Through implementation of its measures and actions, the CAP aims to reduce building energy consumption, vehicle-miles traveled, solid waste generation, and increase carbon sequestration (City of Santa Cruz 2022).

As described above in Section 3.8(a), construction of the project would result in minimal, temporary GHG emissions, which are primarily associated with use of off-road construction equipment, on-road trucks, and worker vehicles. Once construction is complete, long-term operations would be similar to existing conditions and would result in a minimal increase in GHG emissions associated with the standby emergency generator testing and maintenance. The project would comply with all regulations adopted in furtherance of the Scoping Plan to the extent applicable and required by law, including measures that would result in reductions of project-related GHG emissions with no action required at the project level, such as GHG emission reductions through increased energy efficiency and renewable energy production (SB 350), reduction in carbon intensity of transportation fuels (Low Carbon Fuel Standard), and the accelerated efficiency and electrification of the statewide vehicle fleet (Mobile Source Strategy). Furthermore, although not accounted for in the GHG modeling, the project would implement modern electrical systems and controls, including integration of safety features and power monitoring into new equipment, which would increase the long-term operational efficiency of the WWTF and support the City's CAP. Based on the preceding considerations, the project would not conflict with or hinder implementation of the City's CAP GHG reduction measures or obstruct the state's ability to achieve its carbon neutrality targets. The project's potential to conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs would be **less than significant**.

3.9 Hazards and Hazardous Materials

	Potentially Significant Impact	Less Than Significant Impact 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 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 that 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?	☐	☐	☒	☐

a) *Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?*

and

b) *Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?*

Less-than-Significant Impact. Construction of the proposed project would involve the temporary use, transport, and storage of hazardous materials commonly associated with demolition and construction activities, including fuels, lubricants, oils, adhesives, solvents, paints, and other maintenance products. Construction activities would also include removal and replacement of existing electrical equipment, including liquid-filled transformers. Existing transformer oil would be drained and managed in accordance with applicable federal, state, and local regulations governing hazardous materials and waste. The existing transformers were manufactured after the federal prohibition on the manufacture of PCB-containing transformers and are not expected to contain polychlorinated biphenyls (PCBs).

The project would also include demolition of the existing maintenance building. An asbestos and lead survey conducted for the building identified asbestos-containing mastic materials and lead-containing paint/coatings on various building components that may be disturbed during demolition activities (FACS 2026). Identified asbestos-containing materials would be removed and disposed of by appropriately licensed contractors in accordance with applicable federal, state, and local regulations. Similarly, handling, removal, transportation, and disposal of lead-containing materials would be conducted in accordance with applicable hazardous materials, worker safety, and waste disposal requirements (FACS 2026).

Accidental spills or releases of hazardous materials during construction could occur through equipment leaks, refueling activities, demolition activities, or handling of electrical equipment. However, construction contractors would be required to comply with applicable hazardous materials regulations and standard BMPs for storage, handling, spill prevention, and cleanup. Hazardous materials used during construction would be limited in quantity, routinely used for similar infrastructure projects, and would not pose a substantial risk to the public or environment.

Operation of the project would include a new centralized standby power generation system consisting of a 2.5-megawatt diesel generator and an approximately 4,000-gallon diesel fuel storage system. Diesel fuel would be stored and managed in accordance with applicable fire, building, hazardous materials, and environmental regulations, including requirements for secondary containment, spill prevention, and emergency response. The standby generator would only operate during utility outages and periodic testing. Although a fuel release could occur under upset conditions, compliance with applicable regulations and implementation of standard engineering controls would minimize the potential for hazardous materials releases and associated risks to the public and environment.

Following project completion, the WWTF would continue operating as an existing wastewater treatment facility and would not introduce industrial processes that would result in the routine release of hazardous materials. Therefore, the proposed project would not create a significant hazard to the public or the environment through reasonably foreseeable upset or accident conditions involving hazardous materials, and impacts would be **less than significant**.

- c) ***Would the project 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. The nearest schools to the project site are Bay View Elementary School, located approximately 0.45 mile from the WWTF, and Santa Cruz High School, located approximately 0.46 mile from the WWTF. No existing or proposed schools are located within one-quarter mile of the project site.

Construction of the proposed project would involve the temporary use and handling of hazardous materials commonly associated with demolition and construction activities, including diesel fuel, gasoline, lubricating oils, solvents, paints, adhesives, and other maintenance products. Construction activities would also include removal and replacement of electrical equipment and liquid-filled transformers. Any hazardous materials used during construction would be transported, stored, handled, and disposed of in accordance with applicable federal, state, and local regulations. Potential accidental releases would be localized, temporary, and confined to the immediate construction area.

Project operation would include the storage and use of diesel fuel associated with the new 2.5-megawatt standby generator and associated fuel storage system located within the WWTF. Fuel storage and generator operation would comply with all applicable hazardous materials, fire safety, and environmental regulations. The standby generator would operate only during utility outages and routine testing and would not result in hazardous emissions or hazardous materials exposure at nearby schools.

Because no existing or proposed schools are located within one-quarter mile of the project site, and as hazardous materials use would be in accordance with applicable federal, state, and local regulations, neither construction nor operation of the project would emit hazardous emissions or handle hazardous materials in a manner that could affect a school. Therefore, **no impact** would occur.

- d) ***Would the project be located on a site that 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?***

Less-than-Significant Impact. A review of the Cortese List databases did not identify the project site as a hazardous materials site compiled pursuant to Government Code Section 65962.5. No active hazardous materials release sites were identified within a 0.5-mile radius of the project site. The nearest cleanup site is the Neary Lagoon Skate Park site, located approximately 0.18 miles from the project site; however, no active cleanup cases were identified within 0.5 mile of the project area (DTSC 2023). The nearest active LUST site is Pottery Planet, located approximately 2.83 miles from the project site, where petroleum hydrocarbon contamination is undergoing remediation (SWRCB 2023). Given the distance from the project site, this facility would have no potential to affect project construction or operation.

Although project construction would involve excavation activities, including trenching and foundation work, no known contaminated sites are located within the project footprint. In the event previously unidentified contaminated soil or groundwater is encountered during construction, work in the affected area would cease and the material would be managed in accordance with applicable federal, state, and local regulations. Therefore, the project would not create a significant hazard to the public or the environment associated with a hazardous materials site compiled pursuant to Government Code Section 65962.5, and impacts would be **less than significant**.

- 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. The proposed project would not result in a safety hazard or excessive noise for people working or residing in the study area due to airports because the project site is not located within 2 miles of a public use airport nor is it located within an airport land use plan. Therefore, the proposed project would have **no impact** related to airport hazards.

- f) ***Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?***

Less-than-Significant Impact. The City of Santa Cruz identifies several roadway corridors in the vicinity of the project site that may serve as evacuation routes during emergency events, including Mission Street, Bay Street, West Cliff Drive, Laurel Street, and Highway 1 (City of Santa Cruz 2026). Specific evacuation routes would be designated by emergency responders based on the nature and location of an emergency. As discussed in Section 3.17, Transportation, the proposed project would not include modifications to public roadways, intersections, or circulation patterns that could hinder the movement of residents or emergency response vehicles during an emergency. Construction activities would occur primarily within the existing WWTF and would utilize existing access from California Street. Although construction would generate temporary construction traffic associated with equipment deliveries, demolition, excavation, and utility installation activities, no public street closures are anticipated. A traffic control plan would be implemented if necessary to maintain safe vehicle circulation and emergency access during construction.

Construction staging, worker parking, and material storage would occur within the WWTF and would not obstruct surrounding roadways or emergency access routes. Emergency access to the WWTF and surrounding neighborhoods would be maintained throughout construction. Following project completion, operation of the project would consist of electrical infrastructure upgrades within an existing wastewater treatment facility and would not alter roadway networks, emergency access routes, or evacuation procedures. Therefore, the project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan, and impacts would be **less than significant**.

- g) ***Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?***

Less-than-Significant Impact. As discussed in Section 3.20, Wildfire, the project site is not located within a State Responsibility Area (SRA), or Local Responsibility Area (LRA) designated as a fire hazard severity zone (CAL FIRE 2026; CAL FIRE 2025).

The proposed project would occur within the existing WWTF, which is located in a developed urban area surrounded by existing public roadways, wastewater treatment infrastructure, parkland, and residential development. The project does not include residential uses or other habitable structures that would increase the number of people exposed to wildfire hazards. In addition, the project would not substantially alter surrounding vegetation, obstruct emergency access, or interfere with firefighting operations.

Construction activities would involve the temporary use of vehicles, power tools, welding equipment, and other machinery that could represent a potential ignition source. However, construction activities would be required to comply with applicable fire safety requirements, including proper equipment maintenance, fire prevention measures, and availability of fire suppression equipment. Given the developed nature of the site and the limited amount of adjacent combustible vegetation, the potential for construction activities to result in a wildland fire would be low.

Operation of the project would consist of electrical infrastructure improvements, including replacement of substations, switchgear, transformers, and installation of a standby generator within an existing wastewater treatment facility. The project would not introduce land uses or conditions that would substantially increase wildfire risk or expose people or structures to wildfire hazards. Accordingly, the project would not directly or indirectly expose people or structures to a significant risk of loss, injury, or death involving wildland fires. Therefore, impacts would be **less than significant**.

3.10 Hydrology and Water Quality

	Potentially Significant Impact	Less Than Significant Impact 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 ground water 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 erosion or siltation on- or off-site;	☐	☐	☒	
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?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☒	☐

a) *Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?*

Less-than-Significant Impact. Construction activities could temporarily degrade water quality as a result of erosion caused by earthmoving activities or the accidental release of hazardous construction materials. Grading and other construction activities associated with the project could lead to increased erosion and sedimentation from exposed soils and the generation of pollutants, including trash, construction materials, and equipment fluids. Additionally, spills, leakage, or improper handling and storage of substances such as oils, fuels, chemicals, metals, and other materials used during construction could contribute pollutants to stormwater runoff or underlying groundwater.

The proposed project would disturb approximately 0.93 acres. Given that, the project is not required to comply with the National Pollution Discharge Elimination System (NPDES) Construction General Permit. However, project construction activities would comply with applicable City requirements and implement erosion and sediment control best management practices (BMPs) to minimize erosion and water quality impacts. BMPs may include scheduling activities to avoid wet weather, implementing good housekeeping practices, containing construction materials and waste, and controlling sediment and runoff from disturbed areas. Through implementation of these BMPs, the potential for polluted runoff associated with construction activities would be minimized. Project operation would not involve ongoing ground disturbance or result in a substantial increase in impervious surfaces (pavement) or alter the overall developed character of the site and therefore the project would not result in a substantial increase in stormwater pollutants. Therefore, the proposed project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality. Impacts would be **less than significant**.

b) *Would the project 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 consists of modernization and replacement of electrical infrastructure within the existing WWTF. Project activities would include replacement of substations, underground electrical distribution systems, transformers, switchgear, standby power generation facilities, and construction of a new electrical building within the developed footprint of the WWTF. Although construction would require localized trenching and excavation, the project would not involve groundwater extraction for water supply purposes and would not create a new demand for groundwater resources.

The project would not substantially increase impervious surfaces or alter the overall developed character of the site. Improvements would occur primarily within existing developed and previously disturbed areas of the WWTF, including replacement of existing infrastructure and construction of facilities within areas that are currently occupied by developed uses. As a result, the project would not substantially affect stormwater infiltration or groundwater recharge rates.

Groundwater may be encountered during excavation activities and temporary dewatering may be required in localized areas. Any dewatering activities would be temporary and would not result in a long-term depletion of groundwater resources. Dewatering would be conducted in accordance with applicable permits and regulatory requirements and would not substantially interfere with groundwater recharge or basin management objectives.

Following construction, operation of the project would not require ongoing groundwater extraction and would not increase wastewater treatment capacity, wastewater discharge volumes, or service area boundaries. Therefore, the project would not substantially decrease groundwater supplies, interfere substantially with groundwater recharge, or impede sustainable groundwater management of the basin. Impacts would be **less than significant**.

- c) ***Would the project 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 erosion or siltation on- or off-site?***
 - ii) ***Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?***
 - 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?***
 - iv) ***Impede or redirect flood flows?***

Less-than-Significant Impact. The project would be implemented within the existing developed footprint of the WWTF and would not alter the course of any stream, river, or other natural drainage feature. Project activities would include replacement and modernization of existing electrical infrastructure, including substations, underground electrical duct banks, transformers, switchgear, standby power generation facilities, and construction of a new electrical building within previously developed portions of the WWTF.

Construction activities would involve trenching, excavation, demolition, and installation of new equipment and foundations, which could temporarily expose soils to erosion and sedimentation. Ground disturbance associated with construction would be temporary and localized. The project would implement applicable erosion and sediment control BMPs to minimize the potential for erosion, sediment transport, and pollutant discharges during construction.

The project would not substantially increase impervious surface area or alter the overall drainage characteristics of the WWTF site. Following construction, drainage patterns would remain substantially similar to existing conditions because the project primarily consists of replacement and upgrading of

existing facilities within developed areas. The project would not create substantial new sources of runoff, exceed the capacity of existing stormwater drainage infrastructure, or substantially increase the rate or volume of stormwater runoff.

Additionally, the project would not introduce structures that could alter, impede, or redirect flood flows (see Section 3.10[d] for additional information about flood hazards). Therefore, impacts associated with drainage patterns would be **less than significant**.

d) *In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?*

Less-than-Significant Impact. The project site is not located within a mapped tsunami inundation zone (City of Santa Cruz 2012). According to the Federal Emergency Management Agency (FEMA), portions of the project site are located within a Zone A-99 Special Flood Hazard Area.² According to the 2025-2030 City of Santa Cruz Local Hazard Mitigation Plan-Climate Adaptation Plan, the City has worked to improve the flood capacity of the San Lorenzo River levees over the past twenty years (City of Santa Cruz, 2025). In 2002, FEMA re-designated much of the downtown and beach area from A-11 to the A-99 Flood Zone designation in recognition of the significant flood improvements resulting from the San Lorenzo River Flood Control and Environmental Restoration Project. Under the A-99 designation, new buildings and improvements are no longer mandated to meet FEMA flood construction requirements. In 2020, the U.S. Army Corps of Engineers concluded the construction phase of the Flood Control project and turned it over to the City. The City immediately began pursuing accreditation of the project. In 2023, the City Public Works Department and the County of Santa Cruz Community Development and Infrastructure Department submitted an application to FEMA for a Letter of Map Revision to update the FIRMs for downtown Santa Cruz and the San Lorenzo River Floodplain (City of Santa Cruz, 2025).

In addition to enforcing floodplain reduction activities through the City's floodplain management regulations and improving flood capacity through the San Lorenzo River Flood Control and Environmental Restoration Project, the City also addresses improving flood capability for the San Lorenzo River in its City-Wide Creeks and Wetlands Plan, development in floodplains in the General Plan's zoning ordinances, and flooding associated with climate change in its Climate Action Plan (City of Santa Cruz, 2025).

The project consists primarily of replacing and modernizing existing electrical infrastructure within the existing footprint of the WWTF. The project would not increase wastewater treatment capacity or introduce new treatment processes that would increase the potential for release of pollutants during inundation events. Project components would be designed and constructed in accordance with applicable building and safety standards. The project would replace aging electrical infrastructure and improve system reliability and resiliency without substantially changing facility operations. In addition, the new main electrical building would be constructed with a foundation approximately 3 feet above existing grade to account for projected future sea level rise conditions. Therefore, the project would not increase the risk of release of pollutants due to flood, tsunami, seiche, or other inundation hazards and impacts would be **less than significant**.

² The Zone A-99 designation is defined as areas with a 1% annual chance of flooding that will be protected by a Federal flood control system where construction has reached specified legal requirements, and no depths or base flood elevations are shown within these zones.

e) **Would the project conflict with or obstruct the implementation of a water quality control plan or sustainable groundwater management plan?**

Less-than-Significant Impact. Water quality objectives for the project area are established in the Water Quality Control Plan for the Basin Plan, which identifies beneficial uses and water quality objectives for surface water and groundwater resources within the Central Coast Region. As discussed in Section 3.10(a), construction of the project could temporarily generate pollutants associated with excavation, trenching, demolition, and equipment installation activities. However, construction activities would implement erosion control, sediment control, spill prevention, and other BMPs to minimize water quality impacts.

The project would consist of replacing and modernizing existing electrical infrastructure within the existing WWTF. Following construction, the WWTF would continue to operate the same as under existing conditions. The project would not increase wastewater treatment capacity, modify treatment processes, increase wastewater discharges, or result in permanent increases in stormwater runoff. Therefore, the project would not conflict with the water quality objectives or implementation measures of the Basin Plan.

The project does not include groundwater extraction, long-term dewatering, or activities that would interfere with sustainable groundwater management. Accordingly, the project would not conflict with or obstruct the implementation of an applicable sustainable groundwater management plan. Therefore, impacts would be **less than significant**.

3.11 Land Use and Planning

	Potentially Significant Impact	Less Than Significant Impact 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?	☐	☐	☒	☐

a) **Would the project physically divide an established community?**

No Impact. The proposed project would occur entirely within the WWTF and would consist of upgrades and replacement of existing electrical infrastructure, including substations, transformers, switchgear, underground electrical distribution systems, a new electrical building, a standby generator system, and associated improvements. The project would not introduce new transportation corridors, barriers, walls, fences, or other features that could physically separate land uses or restrict access between neighborhoods, businesses, parks, or community facilities. Project construction would occur primarily

within the developed footprint of the WWTF, with limited trenching and utility work extending through previously disturbed areas adjacent to existing facilities. Temporary construction activities would not result in permanent changes to circulation patterns or access routes. During and following construction, the WWTF would continue operating as an existing wastewater treatment facility and would not alter established connections between surrounding residential neighborhoods, parks, public roadways, or other community resources. Because the project would not create a physical barrier or otherwise separate an established community, the project would not physically divide an established community. Therefore, **no impact** would occur.

b) Would the project 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 project would not affect, alter, or change existing or planned land uses within the project area, as no General Plan amendments, zoning changes, or other land use entitlement changes are required. The project site is designated Community Commercial (CC) under the City of Santa Cruz General Plan. The proposed project consists of upgrades and replacement of existing electrical infrastructure within the WWTF including substations, switchgear, transformers, underground electrical distribution systems, a new electrical building, and standby power equipment. The project would not expand the WWTF service area, increase treatment capacity, or change the existing use of the site. Because the project would maintain and improve an existing public utility facility and would not conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect, project impacts related to land use plan consistency would be **less than significant**.

3.12 Mineral Resources

	Potentially Significant Impact	Less Than Significant Impact 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?	☐	☐	☐	☒

a) Would the project 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?

and

b) Would the project 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. The California Geological Survey is responsible for classifying land into Mineral Resource Zones (MRZs) under the Surface Mining and Reclamation Act (SMARA) based on the known or inferred mineral resource potential of that land. Mineral resources lands are classified based on geologic and economic factors without regard to existing land use and ownership (CGS 2021). The following MRZ categories are used to classify land:

- **MRZ-1:** Areas where available geologic information indicate that little likelihood exists for the presence of significant mineral resources.
- **MRZ-2:** Areas where geologic information indicates the presence of significant mineral resources.
- **MRZ-3:** Areas containing known or inferred construction aggregate resources of undetermined mineral resource significance.
- **MRZ-4:** Areas where available geologic information is inadequate to assign to any other MRZ category.

The California Geological Survey Mineral Resource Zone (MRZ) mapping indicates that the project site is located within areas designated as MRZ-1 and MRZ-4 (County of Santa Cruz 2022). MRZ-1 areas are those where available geologic information indicates little likelihood for the presence of significant mineral resources, while MRZ-4 areas are those where available geologic information is insufficient to assign a more specific mineral resource classification. The project site is not located within an MRZ-2 area, where significant mineral resources are known to be present, or an MRZ-3 area, where inferred mineral resources may occur. Therefore, the project site is not identified as containing significant mineral resources of state, regional, or local importance, and implementation of the project would have **no impact** on the availability of known mineral resources.

3.13 Noise

	Potentially Significant Impact	Less Than Significant Impact 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 applicable standards of other agencies?	☐	☐	☒	☐
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?	☐	☐	☐	☒

Dudek conducted ambient noise measurements and noise modeling for the proposed project (Appendix E). The information in Appendix E describes existing noise and vibration conditions in the project vicinity and evaluates potential construction and operational noise impacts associated with implementation of the project. Noise- and vibration-sensitive land uses in the vicinity include nearby residential uses, hotels, and other sensitive receptors located adjacent to and surrounding the project site.

Existing noise conditions in the project area are primarily influenced by traffic on nearby roadways. To characterize ambient noise conditions, Dudek conducted short-term and long-term noise measurements in the vicinity of the project site in August 2026. Measured noise levels ranged from 64 to 73 dBA Leq for short-term measurements, and long-term day-night average sound levels (Ldn) ranged from 51 to 67 dBA at nearby sensitive receptor locations. The results of the analysis are incorporated into the discussion below. Additional details regarding noise terminology, measurement locations, methodologies, and monitoring results are provided in Appendix E.

- a) ***Would the project result in 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 applicable standards of other agencies?***

Less-than-Significant Impact. The impact analysis below addresses both construction and operational noise exposure associated with the proposed project.

Construction-Related Noise Exposure

The major construction activities for the proposed project would consist of demolishing or removing existing site improvements (i.e., electric circuits, transformers, electrical switch gears, emergency generators, etc.) and construction or installation of new systems. Noise impacts from construction activities associated with the proposed project would be a function of the noise generated by construction equipment, equipment location, sensitivity of nearby land uses, and the timing and duration of the construction activities. The nearest sensitive receivers to the project site are residences located along Bay Street to the south (Noise Sensitive Receiver Location (R)1, R2, and R3), at Shelter Lagoon to the north (R4), and along California Street to the north (R5) (See Figure 4). Construction noise modeling was performed to predict worst-case construction noise levels at the closest noise-sensitive uses to the site (Appendix E). The modeled construction noise prediction is worst-case because it assumes all the equipment in a given phase is operating along the construction zone boundary that is closest to the identified off-site receiver. In general, all the construction equipment would not be operating along the construction zone boundary closest to the identified receiver, instead the construction activities would be distributed across the construction zone. Thus, the construction noise analysis herein provides conservative, worst-case results in terms of construction noise exposure for the modeled off-site receivers.

Table 3-5 provides a summary of the construction noise modeling; detailed information is provided in Appendix E. Refer to Appendix E, Exhibit 1 for the location of the modeled residential receivers (R1 – R5) identified in Table 3-5.

Table 3-5. Construction Noise Levels at Nearest Off-Site Receptors by Phase

Phase	Construction Noise Level L_{eq} 8-hr / 1 hr (dBA)				
	R1	R2	R3	R4	R5
Demolition	72	69	64	60	61
Construction of Buildings / Systems	71	68	63	59	60
Highest Noise Level Across All Phases	72	69	64	60	61

Source: Appendix E

While the City has not adopted construction noise level limits for construction activities conducted during daytime hours, the Federal Transit Administration (FTA) has adopted a guideline for daytime construction noise exposure at residential land uses. The FTA guideline is a maximum of 80 dBA L_{eq} which is averaged over a typical 8-hour construction day. Assuming construction activity intensity is similar across the 8-hour construction day, the L_{eq} value for the FTA 8-hour averaging period would be equal to the L_{eq} 1hr value for any given hour within the 8-hour construction window (hence the labeling of L_{eq} 8-hr / 1 hr in the results columns of Table 3-5). As reported in Table 3-5, construction noise levels are not predicted to exceed the FTA recommended maximum of 80 dBA L_{eq} 8-hr at any modeled noise-sensitive receiver.

Table 3-6 provides a comparison of the highest construction related noise levels from all construction phases to measured daytime ambient noise levels at the closest noise-sensitive land uses.

Table 3-6. Highest Construction Noise Levels Compared to Daytime Ambient Noise Levels

Receiver	Ambient Measure Location	Noise Level L_{eq} 1 hr (dBA)		
		Highest Construction Noise Level	Daytime Ambient Noise Level	Increase
R1	LT1	72	67	5
R2	LT1	69	67	2
R3	LT2	64	60	4
R4	LT3	60	50	10
R5	ST3	61	64	0

Source: Appendix E

As reported in Table 3-6, noise levels during the construction phase with the greatest intensity would result in an increase of 0 to 4 dBA L_{eq} over ambient daytime levels at noise-sensitive receivers represented by R2, R3 and R5; these increases would likely not be noticeable to these receivers. However, as also reported in Table 3-6, noise levels during the construction phase with the greatest intensity could result in a temporary increase of up to 5 dBA L_{eq} at R1 and up to 10 dBA L_{eq} at R4. These increases would be readily noticeable and could lead to instances of annoyance. However, for residents that may be outside during construction, the highest construction noise levels of 72 dBA L_{eq} at R1 are not considered hazardous or harmful (hearing protection for construction workers is required for noise levels greater than 80 dBA L_{eq}). Also, the construction noise would likely occur only during the day (avoiding sleep disturbance) and would be temporary (lasting only until construction is completed). In addition, indoor areas of the residences

represented by R1 would experience noise levels approximately 25 dBA L_{eq} less than outdoor levels, or no greater than 47 dBA L_{eq} . These indoor construction-related levels would not be anticipated to interfere with conversation of other daytime indoor activities.

While not specifically proposed, nor anticipated, some elements of the project may need to be constructed in the nighttime period (such as to avoid daytime disruption of critical WWTF operations). Table 3-7 provides a comparison of the highest construction related noise levels from all construction phases to measured nighttime ambient levels at the closest noise-sensitive land uses.

Table 3-7. Highest Construction Noise Levels Compared to Nighttime Ambient Noise Levels

Receiver	Ambient Measure Location	Noise Level L_{eq} 1 hr (dBA)		
		Highest Construction Noise Level	Nighttime Ambient Noise Level	Increase
R1	LT1	72	60	12
R2	LT1	69	60	9
R3	LT2	64	47	17
R4	LT3	60	42	18
R5	ST3	61	57	4

Source: Appendix E

As reported in Table 3-7, noise levels from construction activities conducted in the nighttime period could result in increases over ambient noise levels of up to 18 dBA L_{eq} . Construction noise levels of at least 5 dBA over ambient (or background) levels would be quite evident and could lead to sleep disturbance for existing nearby residences represented by R1 - R4. However, the following ordinances and regulations would govern any incidental nighttime construction work.

SCMC Chapter 9.36 prohibits excessive noise during nighttime hours (10:00 PM through 8:00 AM) (Section 9.36.010, Subsection[a]), but without any quantitative (numerical) limits. Subsection (e) of Chapter 9.36 allows for specific construction activities to occur between the hours of 10:00 PM and 8:00 AM where either the chief building inspector, public works director, planning and community development director or water department director have provided written determination and consent that said task is required to commence or be completed between said hours. Additionally, at a minimum, notice of the dates and times such tasks would be undertaken shall be provided to all residents, tenants and property owners who occupy or own property within 300 feet of the construction site at which such tasks would be performed. The above mandatory notice would allow residents to prepare for rare occasions when nighttime construction might be required for technical reasons.

Hence, while construction noise may result in annoyances when compared to existing ambient noise levels, since the maximum daytime levels would not be harmful to outdoor receivers, would not interfere with indoor activities, would be temporary in nature, and rare nighttime construction would comply with ordinances and regulations, short-term construction noise impacts would be **less than significant**.

Project Operational Noise

The Project would create two electrical circuits that essentially follow the perimeter of the project site, allowing for system redundancy in the case of segment failure in one of the circuits. Primary noise generating equipment for the project includes new electrical transformers, the HVAC system for the electrical controls building, and a new emergency power generator. These components would be located along the site perimeter, where noise from operations could impact noise-sensitive receivers in the community. The project would also replace a number of electrical pumps and motors at the facility, but this equipment is not located near the project site boundaries, and the replacement equipment would not be anticipated to be louder than the current equipment being replaced.

Stationary Source Reference Sound Levels

New pad-mounted transformers would be provided in seven (7) separate substations along the project site perimeter. These transformers would comply with National Electrical Manufacturers Association (NEMA) standards for a medium voltage transformer, not to exceed a sound level generation of 76 dBA L_w (sound power level). This sound power level is equivalent to a sound pressure level of 68 dBA at 1 meter (3.28 feet). This sound pressure level was entered into the noise model to quantify the transformer operational noise levels for the project.

The electrical control building would provide approximately 2,000 square feet of floor area and would house the main electrical switch gear, as well as system monitoring and controls. A Carrier CA16NA 060 air conditioner unit (5-ton capacity) was used as representative of the sound levels produced by HVAC equipment that could be employed for the electrical control building. The manufacturer sound power rating for Carrier CA16NA 060 is 78 dBA L_w . This is equivalent to a sound pressure level of 70 dBA at a distance of 1 meter (3.28 feet). This sound pressure level was entered into the noise model to quantify the electrical control building HVAC operational noise levels for the project.

The project includes a new 2.5-megawatt (or 2500 kilowatt) emergency power generator, to be enclosed in a weatherproof and sound-attenuating enclosure. Sound reference data for a Generac SG250 (2.5 MW capacity) with a Level 1 weatherproof acoustic enclosure was used. The manufacturer indicates this configuration produces a sound pressure level of 77.8 dBA under full load conditions at a distance of 23 feet. This sound pressure level was entered into the noise model to quantify the emergency electrical power generator operational noise levels for the project.

Stationary Source Operational Sound Level Modeling

Prediction of operational noise for the project involved creation of a sound propagation model using a Dudek proprietary Excel-based software tool. Dudek NoisePro is used for calculation, presentation, assessment, and prediction of environmental noise. The above-referenced equipment sound pressure level ratings were entered into the NoisePro model. The outdoor noise propagation formulas in NoisePro follow the International Organization of Standardization (ISO) Standard 9613-2, "Attenuation of Sound During Propagation Outdoors, Part 2: Engineering Method of Calculation" (ISO 2024).

Calculation parameters that establish how the NoisePro model predicts combined noise levels from the above-listed project sources include as follows:

- Sound propagation per International Organization of Standardization (ISO) 9613-2 (ISO 2024);
- Barrier attenuation per International Organization of Standardization (ISO) 9613-2 (ISO 2024);
- Default ground acoustical absorption coefficient = 0.5 (on a scale of 0 = reflective, 1 = absorptive); and;
- Zero order of reflection.

Table 3-8 presents the results of the operational noise modeling at the same five receivers used for construction noise modeling (R1 – R5) and compares these modeled operational noise levels to measured ambient noise levels. As indicated in Table 3-8, the project would result in an increase of no more than 1 dBA in the ambient noise level at any of the modeled receivers. This level of increase in the outdoor ambient environment would not be discernible to the human ear. Consequently, operational noise impacts of the project would be **less than significant**.

Table 3-8. Project Operational Noise Levels Compared to Nighttime Ambient

Receiver	Ambient Measure Location	Measured Existing Ambient (dBA Leq) ¹	Predicted Operational Noise Level (dBA Leq)	Existing + Project (dBA Leq)	Increase (dBA Leq)
R1	LT1	60	54	61	1
R2	LT1	60	47	60	0
R3	LT2	47	42	48	1
R4	LT3	42	37	43	1
R5	ST3	57	34	57	0

Source: Dudek (Attachment D).

Notes: Leq = equivalent continuous sound level; dBA = A-weighted decibels

Project-Related Traffic Noise Exposure

During construction of the project, the highest anticipated traffic volumes would consist of 104 average daily trips (ADT), including construction worker commute trips and vendor trips delivering materials (See CalEEMod data in Appendix E). The construction traffic route to reach the project site would include Mission Street (Highway 1) and Bay Street. According to Caltrans (2024), Mission Street north of Bay Street carries approximately 34,000 ADT. According to Santa Cruz County (2018), Bay Street east of Mission Street carries 7,808 ADT. A doubling of the ADT on a roadway segment would result in an increase of 3 dBA, which would not be a noticeable increase for an average person. Project construction traffic on Mission Street would represent an increase of 0.3% of existing ADT, while it would represent an increase of 1.3% of the current ADT on Bay Street. Therefore, traffic noise increases associated with construction added trips would be well below levels discernible by the human ear. In addition, long-term operation of the project would not increase the number of ADT associated with current operations at the project site. Consequently, project construction and operational traffic noise impacts would be **less than significant**.

b) Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

Less-than-Significant Impact. Construction activity may generate vibration that could cause annoyance to people in the project vicinity and/or have the potential to damage nearby buildings. These kinds of activities can generate varying degrees of ground-borne vibration, depending on the construction procedures and the type of construction equipment operated. Construction equipment generates vibrations that spread through the ground and diminish with distance from the source. The effects on buildings (i.e., building damage) are dependent on the location of the buildings to the source and the characteristics of the building structure.

Construction Vibration

The California Department of Transportation (Caltrans) has been assembling data for vibration levels generated by heavy construction equipment operation during the building of transportation projects for many years. The vibration levels from use of such equipment are representative for other types of construction efforts, not just transportation projects, and are therefore widely employed to assess vibration levels from heavy equipment use for any effort. According to Caltrans (2020), the most important equipment relative to generation of vibration, and the vibration levels produced by such equipment, is illustrated in Table 3-9.

Table 3-9. Vibration Velocities for Typical Construction Equipment

Equipment	PPV at 25 Feet (Inches Per Second)
Vibratory Roller	0.210
Large Bulldozer	0.089
Loaded Trucks	0.076
Drill Rig / Auger	0.089
Jackhammer	0.035
Small Bulldozer	0.003

Source: Caltrans 2020.

Caltrans uses a human annoyance threshold of 0.2 in/sec PPV and a residential structure damage threshold of 0.3 in/sec PPV. Using the vibration level value for each of the equipment listed in Table 3-9, the distance to the more stringent vibration level of 0.2 in/sec PPV was determined, using the following formula:

$$\text{Peak particle velocity at distance (d)} = \text{peak particle velocity}(d_{\text{ref}}) * (d_{\text{ref}}/d)^{1.5}$$

In the above equation, “d” is the distance between the receiver and a vibration source, “d_{ref}” is the reference distance that applies for the indicated vibration magnitude. The calculated distance to a vibration level of 0.2 in/sec PPV represents the radius from each equipment type within which potentially significant vibration impacts from project construction could occur. Table 3-19 presents the results of applying the above equation to the equipment in Table 3-9. As illustrated in Table 3-10, ground-borne vibration levels for most construction equipment would attenuate to less than 0.2 in/sec PPV within approximately 26 feet of the equipment.

Table 3-10. Distance from Construction Equipment to Vibration Level of 0.2 in/sec PPV

Equipment	Distance From Equipment Where Vibration Level is Reduced to 0.2 in/sec PPV (Feet)
Vibratory Roller	26
Large Bulldozer	15
Loaded Trucks	13
Drill Rig / Auger	15
Jackhammer	8
Small Bulldozer	2

Source: Caltrans 2020

Consequently, construction activities that are no closer than 26 feet from vibration-sensitive uses, including residences; construction-related vibration levels would remain below the significance threshold. The closest existing off-site structure to the construction zone boundary of the project is located approximately 185 feet to the south from the project construction boundary. Therefore, project construction-related vibration levels at existing off-site structures would be **less than significant**.

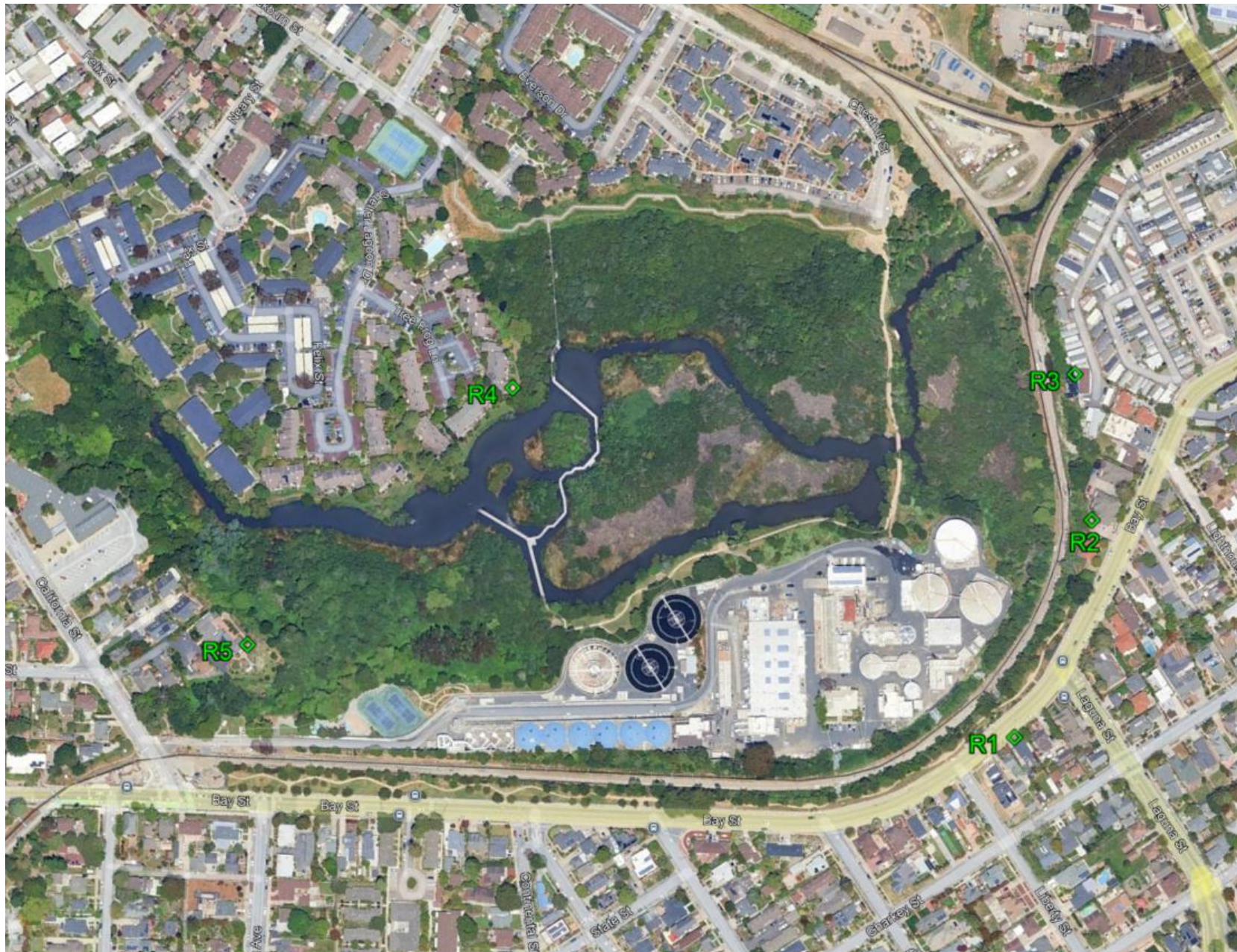
Operation Phase Vibration

Vibration impacts associated with commercial facility operations are limited to large scale equipment with rotational components or involving repeated impact or “striking” movements (e.g., industrial grade compressors, stamping machines, printing presses), or with the maneuvering of heavy trucks. The ongoing operation of the proposed project would not involve rotational equipment, or impact equipment. The ongoing operation of the proposed project would also not alter the existing composition of the vehicle fleet accessing the project site or the overall volume of vehicles. Consequently, long-term operation of the project would have **no impact** on vibration levels associated with the existing roadway.

- 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?*

No Impact. The proposed project is not located within the vicinity of a private airstrip. The project area is not located within an Airport Land Use Plan, nor is it located within 2 miles of a public use airport. Watsonville Municipal Airport is located approximately 13.25 miles southwest of the project site. In addition, the project would not include occupied facilities that would result in the exposure of people to airport-related noise. **No impact** would occur.

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Legend

R# - Noise-Sensitive Receiver Location

Figure 4
Modeled Noise-Sensitive Receivers Locations

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3.14 Population and Housing

	Potentially Significant Impact	Less Than Significant Impact 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?	☐	☐	☐	☒

- a) ***Would the project 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)?***

Less-than-Significant Impact. The project would not include the construction of new homes or businesses or extend new roads or other infrastructure into undeveloped areas. The project consists of upgrades and replacement of existing electrical infrastructure within WWTF and would not increase treatment capacity or expand the facility's service area. Given the modest level of construction required for the project, it is reasonable to anticipate that workforce requirements for construction could be met through the local labor force within the region. Long-term operation and maintenance of the project would be performed by existing City staff and would not generate new employment. Therefore, the project impact related to population growth would be **less than significant**.

- b) ***Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?***

No Impact. The proposed project would consist of upgrades and replacement of existing electrical infrastructure within the WWTF. The project site does not contain residential uses and would not require the removal or displacement of existing housing. In addition, the project would not displace residents, businesses, or other uses that could result in the need for replacement housing elsewhere. Therefore, the proposed project would not displace substantial numbers of existing people or housing and would have **no impact**.

3.15 Recreation

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. RECREATION				
a) Would the project 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) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

- a) ***Would the project 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?***

Less-than-Significant Impact. The proposed project would occur within the existing WWTF, which is located near several recreational resources, including Neary Lagoon Park, Lighthouse Field State Beach, Garfield Park, and Natural Bridges State Beach. The project does not include residential, commercial, or other population-generating development and therefore would not introduce a new population or substantially increase recreational use beyond existing levels.

Construction activities would occur primarily within the developed footprint of the WWTF, with connection of new electrical lines through existing conduits beneath La Barranca Park and adjacent to the Coast Rail Trail. Temporary construction-related effects such as noise, construction traffic, and the presence of equipment could occur in the vicinity of Neary Lagoon Park and La Barranca Park. However, these effects would be temporary and would not substantially alter public access to recreational facilities. Any disturbed park areas would be restored following completion of construction.

The project consists of upgrades and replacement of existing electrical infrastructure and would not create new recreational facilities, expand access to existing recreational resources, or otherwise increase the use of neighborhood or regional parks. Following construction, recreational facilities in the project vicinity would continue to operate as under existing conditions.

Because the project would not generate new demand for recreational facilities, would not substantially increase usage of existing parks, and would restore temporarily disturbed areas following construction, it would not cause or accelerate substantial physical deterioration of neighborhood or regional parks or other recreational facilities. Therefore, project impacts would be **less than significant**.

- b) ***Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?***

No Impact. The project consists of electrical infrastructure improvements within the existing WWTF and is not part of an existing recreational facility. The project would not create or expand recreational opportunities, increase demand for recreational facilities, or require the construction or expansion of parks, trails, playgrounds, or other recreational facilities. New electrical lines would be routed through existing conduit lines underneath the Coast Rail Trail and La Barranca Park. Although a portion of the project would occur beneath La Barranca Park, these activities would be temporary, and the park would be closed or public access limited as part of project construction. Because the project would not include or require the construction or expansion of recreational facilities, it would not result in adverse physical effects on the environment related to recreation. Therefore, the project would result in **no impact**.

3.16 Public Services

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
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XV. PUBLIC SERVICES – Would the project:

- a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, 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?	☐	☐	☐	☒

- a) ***Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, 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?

Less-than-Significant Impact. The proposed project consists of upgrades and replacement of existing electrical infrastructure within the WWTF, including replacement of substations, transformers, switchgear, underground electrical distribution systems, a new electrical building, and a standby power generation system. The project does not include residential, commercial, or other population-generating development and would not increase the number of people served by the WWTF or expand the facility's service area. As a public infrastructure improvement project, it would not increase demand for fire protection services or require the construction, relocation, or expansion of fire stations or other fire protection facilities.

Construction is anticipated to occur over approximately 28 – 36 months and would involve demolition, excavation, trenching, equipment installation, and utility work within the existing WWTF. Construction activities could result in temporary increases in vehicle traffic associated with equipment deliveries and worker travel; however, no public street closures are anticipated. Access to the project site and surrounding roadways would be maintained throughout construction, and emergency vehicle access would remain available at all times.

Following project completion, the project would improve the reliability and resiliency of electrical systems serving the WWTF and would not substantially increase the demand for fire protection services. Therefore, the project would not result in a substantial adverse effect on fire protection services, and impacts would be **less than significant**.

Police protection?

Less-than-Significant Impact. Police protection services within the project area are provided by the Santa Cruz Police Department. No police facilities are located within the project site. The nearest police facility is located approximately 0.46 mile southwest of the project site, and the project area is served by existing patrol routes and response protocols.

The proposed project consists of upgrades and replacement of existing electrical infrastructure within the WWTF. The project would not introduce new land uses, residential units, commercial development, or other population-generating uses and therefore would not increase the demand for police protection services. The project would occur within an existing developed public utility facility and would not alter community boundaries, access to neighborhoods, or established patrol patterns. As such, the project would not generate the need for additional police personnel, vehicles, or facilities to maintain service levels.

During construction, temporary increases in traffic associated with worker travel, equipment deliveries, and construction activities would occur. However, access to the WWTF and surrounding roadways would be maintained throughout construction, and emergency access would remain available at all times. Construction staging, worker parking, and material storage would occur within the WWTF and would not substantially affect police response times or access to surrounding areas.

Overall, the project would not increase demand for police protection services or require expansion or modification of police facilities. Impacts related to police protection services would therefore be **less than significant**.

Schools?

No Impact. There are several public and private schools located within the broader vicinity of the project site; however, no schools are located within or immediately adjacent to the project area. The nearest schools are Bay View Elementary School, located approximately 0.45 miles from the WWTF, and Santa Cruz High School, located approximately 0.46 miles from the WWTF.

The proposed project consists of upgrades and replacement of existing electrical infrastructure within the existing WWTF and does not include residential, commercial, or other population-generating development that would increase student enrollment. The project would not increase the WWTF's treatment capacity,

expand its service area, or otherwise induce population growth. Accordingly, the project would not result in the need for new or expanded school facilities and would not affect the ability of existing schools to operate at acceptable service levels. Therefore, there would be **no impact** related to school services.

Parks?

Less-than-Significant Impact. Several public parks and recreational facilities are located within the vicinity of the project site. The following parks are located near the proposed project area:

- **Neary Lagoon Park** – located immediately adjacent to and north of the WWTF
- **La Barranca Park** – located immediately adjacent to and north of Bay Street
- **Lighthouse Field State Beach** – approximately 0.64 miles south
- **Garfield Park** – approximately 0.65 miles southwest
- **Natural Bridges State Beach** – approximately 1.6 miles southwest

Of these parks, Neary Lagoon Park and La Barranca Park are located immediately adjacent to the WWTF and may experience temporary construction-related effects such as noise around both parks, increased construction vehicle activity, and the presence of construction equipment near La Barranca Park. In addition, a portion of the project includes installation of approximately 150 feet of new electrical lines through existing conduit beneath La Barranca Park to connect to existing PG&E infrastructure adjacent to the park. Although a portion of the project would occur beneath La Barranca Park, these activities would be temporary and would not require closure of the park or limit public access during construction.

The project would not permanently remove parkland, alter recreational facilities, or restrict long-term public access to parks or recreational opportunities. Nearby parks, including Lighthouse Field State Beach, Garfield Park, and Natural Bridges State Beach, are located outside the construction area and would not be directly affected by project activities. Following construction, the WWTF would continue operating as an existing wastewater treatment facility, and recreational uses in the surrounding area would remain unchanged.

The project is a public infrastructure improvement that does not include residential development or other population-generating land uses. Therefore, it would not increase demand for park services or require the construction or expansion of park or recreational facilities. While temporary and localized construction-related disturbances could occur near Neary Lagoon Park and La Barranca Park, these effects would be short term and would not result in a permanent reduction of park or recreational opportunities. Therefore, impacts related to parks and recreation facilities would be **less than significant**.

Other public facilities?

No Impact. The two closest public library facilities serving the project area are the Garfield Park Branch Library, located approximately 0.46 mile southwest of the project site, and the Santa Cruz Public Library Downtown Branch, located approximately 0.87 mile north of the project site.

Neither of these library facilities is located within or adjacent to the project area, and no construction activities would occur near library buildings, access points, or parking areas. The proposed project consists of upgrades and replacement of existing electrical infrastructure within the WWTF and would not alter

roadway access routes serving library users. The project is a public infrastructure improvement and does not include residential, commercial, or other population-generating land uses. As such, it would not generate new population growth or increase demand for library services or facilities. The project would not require the construction, expansion, or modification of any library facilities, and there would be **no impact**.

3.17 Transportation

	Potentially Significant Impact	Less Than Significant Impact 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?	☐	☐	☒	☐

a) *Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?*

No Impact. The project site is located adjacent to Bay Street and California Drive in the City. Access to the WWTF is on a facility road off of California Street. The General Plan 2030 includes goals, policies and actions that set forth comprehensive measures to reduce vehicle trips, increase vehicle occupancy, encourage use of alternative transportation modes, and promote alternative-sustainable land use patterns, all of which would help reduce vehicle trips, and avoid and minimize adverse impacts related to traffic. The project consists of electrical infrastructure upgrades to the existing WWTF. No city roadways or public streets would be closed or altered as part of the project.

The project would not increase roadway capacity, generate a permanent increase in traffic, or change traffic patterns that could cause an impact to the circulation system including transit, roadway, bicycle, and pedestrian facilities and therefore would not conflict with adopted policies addressing the circulation system. Therefore, the project would not conflict with plans or policies regarding the City's circulation system and would result in **no impact**.

b) *Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?*

Less-than-Significant Impact. CEQA Guidelines section 15064.3, subdivision (b) codifies the switch from LOS to vehicle miles traveled (VMT) as the metric for transportation analysis pursuant to state legislation adopted in 2013. CEQA Guidelines Section 15064.3(b) indicates that development projects that exceed an applicable VMT threshold of significance may indicate a significant impact.

In accordance with the CEQA Guidelines, the City has transitioned from intersection LOS formerly used for traffic impact analyses to VMT as the metric for determining potentially significant transportation impacts. The City adopted a VMT transportation threshold on June 9, 2020, in accordance with CEQA and state requirements, as well as VMT Implementation Guidelines that are consistent with the State's VMT Guidelines. The threshold generally establishes that a project exceeding a level of 15 percent below the County-wide average VMT may result in a significant transportation impact. Updates to the City's Guidelines were adopted on June 14, 2022 (City of Santa Cruz 2022).

Projects, or portions of a project that meet the screening criteria do not require a CEQA transportation analysis, and such projects, or portions of a project, would have a non-significant CEQA transportation impact based on their project location and characteristics. According to the City's guidelines (City of Santa Cruz 2022), projects that would not be expected to result in a significant VMT impact and that are screened out from further transportation impact review include:

- Small projects that generate fewer than 110 trips per day;
- Projects near high-quality transit: within a ½ mile of a major transit stop or a high-quality transit corridor with a combined service interval frequency of 15 minutes or less during the AM and PM peak hours;
- Local-serving retail if a single store is less than 50,000 square feet or project is a local-serving project as determined by the City;
- Affordable housing projects that provide a high percentage of affordable housing as determined by the City;
- Local essential service, including day care center, public K-12 schools, police or fire facility, medical/dental office building, government offices, and supportive housing types (assisted living, permanent supportive housing, memory care, etc.);
- Map based screening; and
- Redevelopment projects that do not result in a net increase in VMT.

The project was reviewed in accordance with the City's adopted guidelines. The proposed project meets the screening criteria because it would not result in a net increase in VMT and therefore meets the "small project" screening criterion. As a result, the project would not result in a significant impact related to VMT based on the City's adopted threshold and guidelines and is screened out from further VMT impact review. Therefore, the project impact related to VMT and conflicts with CEQA Guidelines section 15064.3 would be **less than significant**.

- c) **Would the project 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 proposed project consists of upgrades and replacement of existing electrical infrastructure within the WWTF. The project would not permanently alter roadway connectivity, designated emergency access routes. The project would be designed and constructed to meet the current design standards for the City. Once construction is completed, the project area would return to pre-construction conditions. Therefore, project impacts due to increased hazards from geometric design features or incompatible uses would be **less than significant**.

- d) **Would the project result in inadequate emergency access?**

Less-than-Significant Impact. The project would not include changes to the existing street system that could hinder emergency access. Construction and staging areas would occur on the site of the WWTF and not obstruct project site egress or ingress. As previously discussed, construction of the project may require traffic control when trucks and equipment access the plant. A Traffic Control Plan would be developed as part of the project, which would include provisions for addressing lane closures and traffic diversions if required. Implementation of these requirements would ensure that access to the WWTF from public streets would be maintained and allow for emergency vehicles to continue to move through the area in the event of emergencies during construction. During operation, the WWTF would continue to function as under existing conditions and would not affect access for emergency response or evacuation. Therefore, the project's impact on emergency access would be **less than significant**.

3.18 Tribal Cultural Resources

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII. TRIBAL CULTURAL RESOURCES				
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), or	☐	☒	☐	☐
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 Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

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)?*

and

- 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.*

Less-than-Significant Impact with Mitigation Incorporated. As in Section 3.5(b) above, an Archaeological Inventory Report prepared for the project included Native American outreach, archaeological survey, and subsurface testing (Appendix C). On August 19, 2026, Dudek sent tribal outreach letters to tribes culturally affiliated with the project area. Responses received on August 24, 2026 expressed interest in the project, identified the project vicinity as culturally sensitive, and recommended consultation and/or tribal monitoring. Henry Munoz of the Costanoan Rumsen Carmel Tribe requested a tribal consultation call with the City, which occurred on September 15, 2026. During this call, Henry Munoz requested noted the importance of this site and requested that a representative from the tribe monitor all ground disturbing activities and that a cultural sensitivity meeting be held with the contractor prior to ground disturbance. The City agreed to these requests in memo dated October 9, 2026.

The archaeological survey and subsurface testing did not identify any tribal cultural resources within the project area. Based on the results of the assessment, no known tribal cultural resources have been identified within proposed disturbance areas. However, because the project includes ground-disturbing activities, it is still possible that previously unidentified tribal cultural resources could be encountered during construction. If ground-disturbing construction activities were to unearth previously unidentified tribal cultural resources, project impacts on such resources could be **potentially significant**.

Implementation of **MM-CUL-1** and **MM-CUL-2** would ensure that appropriate procedures are followed in the event tribal cultural resources are encountered during construction. With implementation of **MM-CUL-1** and **MM-CUL-2**, impacts to tribal cultural resources would be reduced to **less than significant**.

3.19 Utilities and Service Systems

	Potentially Significant Impact	Less Than Significant Impact 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 new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications 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 waste water treatment provider which 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?	☐	☐	☒	☐

- a) ***Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?***

Less-than-Significant Impact with Mitigation Incorporated. The proposed project would include the replacement, relocation, and construction of electrical infrastructure within the existing WWTF, including substations, transformers, switchgear, underground electrical distribution systems, a new electrical building, standby power equipment, and associated utility improvements. The project would also include limited utility connections, trenching, and excavation activities necessary to support operation of the upgraded facilities.

The project would not require expansion of water treatment facilities, wastewater treatment capacity, stormwater drainage systems, natural gas infrastructure, or telecommunications facilities. Utility improvements would occur primarily within the existing developed footprint of the WWTF and would utilize existing utility corridors where feasible. The project would not increase wastewater treatment capacity, expand the WWTF service area, or substantially increase utility demand.

Because the utility work would occur primarily within an existing developed public utility facility, would largely consist of replacement and modernization of existing infrastructure, and would not increase long-term service demand or require major off-site utility expansions, the construction or relocation of utilities would not likely result in significant environmental effects. However, the physical environmental effects of the project, including utility installation, trenching, excavation, and other ground-disturbing activities, are evaluated throughout this CEQA document. Mitigation measures are identified to address **potentially significant impacts** related to biological resources (see Section 3.4, Biological Resources), cultural resources (see Section 3.5, Cultural Resources), geology and soils (see Section 3.7), and tribal cultural resources (see Section 3.18, Tribal Cultural Resources) to reduce project impacts to less than significant. All other impact categories would be less than significant or would result in no impact. Therefore, the project impact related to the relocation or construction of utility facilities would be reduced to **less than significant**.

b) *Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?*

No Impact. The proposed project consists of upgrades and replacement of existing electrical infrastructure within the WWTF and does not include residential, commercial, industrial, or institutional development. As a public utility infrastructure improvement project, it would not generate new water demand or increase long-term water consumption. The project would not add new users to the City's water system, nor would it induce reasonably foreseeable future development that would require additional water supplies.

The project would not increase the treatment capacity of the WWTF, expand its service area, or require new or expanded water supply facilities. Water use during construction would be temporary and limited, consisting primarily of dust control, equipment cleaning, and minor construction-related uses. This short-term use would be minimal and would not affect the availability of potable water supplies or the City's ability to meet existing and projected water demands during normal, dry, or multiple dry years.

Because the project does not increase operational water demand, does not require new or expanded water supply infrastructure, and does not facilitate growth, sufficient water supplies are available to serve the project under all hydrologic conditions. Therefore, the project would not impact water supply availability, and there would be **no impact**.

c) *Would the project result in a determination by the wastewater treatment provider which 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?*

No Impact. The proposed project consists of upgrades and replacement of existing electrical infrastructure within the WWTF and does not include residential, commercial, industrial, or institutional land uses. As a public utility infrastructure improvement project, it would not generate additional wastewater flows or increase long-term wastewater demand.

The project would not increase the treatment capacity of the WWTF, expand the facility's service area, or introduce new development that would require wastewater collection or treatment services. In addition, the project would not alter existing wastewater treatment processes or increase the volume of wastewater received at the facility. Rather, the project is intended to improve the reliability, resiliency, and operational flexibility of the WWTF's electrical systems in support of ongoing facility operations.

Because the project would not increase wastewater generation or place new demands on wastewater collection or treatment facilities, the wastewater treatment provider would not be required to provide additional treatment capacity beyond existing commitments. Therefore, the project would have **no impact** related to wastewater treatment capacity.

d) *Would the project 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. Solid waste collection and disposal services, including recycling services, are provided to City residents, businesses, and institutions within the City's boundaries by the City. The City's Resource Recovery Facility (RRF) is located approximately 3 miles west of the City off Highway 1 at 605 Dimeo Lane. The site covers 100 acres with 67 acres available for disposal use. The RRF only accepts municipal solid waste and serves as a sorting facility to remove any recyclable or composting materials. The recycling center accepts a variety of recyclable materials.

The RRF is permitted to receive a total of 10,484,325 cubic yards (cy) of solid waste, including wood waste, tires, sludge (biosolids), mixed municipal waste, metals, inert wastes, industrial wastes, green materials, dead animals, and construction/demolition wastes. The landfill had a remaining capacity of approximately 5.3 million cy (approximately 51%) and is anticipated to reach maximum final capacity in the year 2054 (CalRecycle 2025a). In 2025, 57,759 tons of solid waste were disposed of at the RRF, which is an average of approximately 158 tons per day (approximately 34% of daily capacity) (CalRecycle 2025b).

The project would generate a limited amount of solid waste during the construction period. Solid waste generated during construction would be temporary, and the amount would not exceed the remaining capacity of the City's RRF. These materials would be managed in accordance with applicable state and local regulations and transported to approved disposal or recycling facilities, including the RRF or other appropriate facilities. Asphalt and concrete materials would be recycled to their extent feasible, consistent with City policies and state solid waste reduction requirements. Tree and vegetation debris would be chipped, recycled, or otherwise disposed of at permitted facilities in compliance with local requirements.

The project would not include operational elements that would generate substantial new long-term solid waste. As a public utility infrastructure improvement project involving the replacement and modernization of existing electrical infrastructure within the WWTF, the project would not introduce residential, commercial, industrial, or other population-generating land uses that would generate new solid waste streams. Following construction, operation of the WWTF would continue under existing conditions, and routine solid waste generated through facility maintenance and operations would not substantially increase as a result of the project. Therefore, solid waste generation following construction would be similar to existing conditions.

Construction waste management practices would comply with all applicable regulations and would support compliance with California's solid waste diversion and landfill reduction goals. Because solid waste generation would be short term, limited in volume, and handled through existing waste management systems with sufficient capacity, the project would not impair solid waste reduction goals or exceed local or regional capacity. Accordingly, impacts related to solid waste generation would be **less than significant**.

e) ***Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?***

Less-than-Significant Impact. Waste generated during construction of the project would be properly managed and disposed of in accordance with applicable federal, state, and local requirements (see Section 3.19[d] above). Construction-related waste would consist primarily of demolished building materials, electrical equipment, transformers, conduit, wiring, concrete, asphalt, soil, and other miscellaneous construction debris. Existing electrical equipment and materials removed as part of the project would be salvaged, recycled, or disposed of at appropriate facilities to the extent feasible. All solid waste would be collected, transported, recycled, or disposed of at permitted facilities in compliance with applicable regulations.

Under the California Integrated Waste Management Act of 1989 (AB 939), local jurisdictions are required to implement waste reduction and recycling programs and divert solid waste from landfills. The City maintains programs consistent with these requirements, and recyclable materials generated by the project would be diverted to the extent feasible. While operation of the project would generate limited routine maintenance waste associated with electrical equipment and facility operations, such waste would be managed in accordance with existing WWTF practices and applicable regulations. Therefore, the project would comply with all applicable solid waste management and reduction statutes and regulations, and impacts would be **less than significant**.

3.20 Wildfire

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
XX. WILDFIRE – 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?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Require the installation or maintenance 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?	☐	☐	☒	☐

a) Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

Less-than-Significant Impact. The City of Santa Cruz maintains an adopted Emergency Operations Plan (EOP) that establishes the framework for emergency preparedness, response, evacuation coordination, and recovery within the City. The EOP identifies roles and responsibilities for City departments and personnel during emergencies resulting from natural and human-caused hazards, including earthquakes, storms, flooding, tsunamis, wildfires, and hazardous materials incidents. The EOP is implemented in coordination with the Santa Cruz County Operational Area in accordance with the Standardized Emergency Management System (SEMS), as required by State law.

The proposed project consists of upgrades and replacement of existing electrical infrastructure within the WWTF. The project would not permanently alter roadway connectivity, designated emergency access routes, or evacuation procedures identified in adopted emergency response or evacuation plans. Following construction, access to the WWTF and surrounding roadways would remain unchanged, and operation of the project would not interfere with emergency response or evacuation activities.

During construction, temporary increases in construction traffic associated with worker travel, equipment deliveries, excavation, demolition, and utility installation activities would occur. However, no public street closures are anticipated. Access to the project site would be maintained via existing roadways, and construction activities would be managed through appropriate traffic control measures as necessary. Emergency vehicle access to the WWTF and surrounding areas would be maintained throughout the construction period. Construction staging, material storage, and worker parking would occur within the WWTF and would not obstruct public roadways or emergency access routes.

Because the project would not permanently interfere with emergency access or evacuation routes and would maintain emergency response functionality during construction, it would not substantially impair an adopted emergency response plan or emergency evacuation plan. Therefore, impacts related to emergency response and evacuation would be **less than significant**.

- b) ***Due to slope, prevailing winds, and other factors, would the project exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?***

Less-than-Significant Impact. The project site is located within a developed urban area of the City adjacent to Neary Lagoon Park and other developed land uses. The project site is not located within a State Responsibility Area (SRA), or Local Responsibility Area (LRA) designated as a fire hazard severity zone (FHSZ) (CAL FIRE 2026; CAL FIRE 2025).

The proposed project consists of upgrades and replacement of existing electrical infrastructure within the WWTF. The project would not increase the intensity or type of land use at the site, introduce residential uses, or result in substantial population growth. Construction activities would involve temporary use of vehicles, equipment, and other potential ignition sources; however, construction would be required to comply with applicable fire safety regulations and standard fire prevention practices. In addition, the project would occur primarily within developed and disturbed areas of the existing WWTF, where vegetation is limited.

Following construction, the project would improve the reliability and resiliency of the WWTF's electrical systems and would not alter existing wildfire risk conditions or expose additional people or structures to wildfire hazards. Because the project would not substantially increase wildfire risks or expose people or structures to a significant risk of loss, injury, or death involving wildland fire, impacts would be **less than significant**.

- c) ***Would the project require the installation or maintenance 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?***

Less-than-Significant Impact. The project would involve replacement and modernization of existing electrical infrastructure within the WWTF, including electrical distribution lines, substations, transformers, switchgear, standby power equipment, and a new electrical building. The project would occur primarily within the existing developed footprint of the WWTF and would not require the construction of new roads, fuel breaks, emergency water sources, or other infrastructure that could exacerbate wildfire risk.

The project includes upgrades to existing utility infrastructure serving the WWTF; however, these improvements would occur within an existing developed facility and would not increase fuel loads, introduce substantial new ignition sources, or alter site conditions in a manner that would increase fire risk. Construction activities would be temporary and would be conducted in accordance with applicable fire safety requirements and standard construction practices.

The project site is located within an urbanized area and is not located within an SRA or an LRA designated as a Moderate, High, or Very High FHSZ (CAL FIRE 2025). Operation of the upgraded electrical facilities would not require new or expanded infrastructure that could contribute to wildfire risk or result in ongoing environmental impacts related to wildfire. Accordingly, the installation and maintenance of project infrastructure would not exacerbate wildfire risk. Therefore, impacts would be **less than significant**.

- d) **Would the project 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?**

Less-than-Significant Impact. The project would occur within the existing City of Santa Cruz WWTF and consists primarily of electrical infrastructure improvements, including replacement of underground electrical distribution lines, substations, transformers, switchgear, standby power equipment, and construction of a new electrical building. The project site is relatively flat and located within a developed urban area. The project does not include development on steep slopes or in areas susceptible to landslides.

Construction activities would involve trenching, excavation, and installation of electrical infrastructure within the existing WWTF footprint. Disturbed areas would be restored following construction, and erosion and sediment control measures would be implemented as required. The project would not substantially alter existing drainage patterns, increase runoff in a manner that would expose people or structures to flooding hazards, or result in downslope or downstream flooding.

In addition, the project site is not located within an SRA or an LRA designated as a Moderate, High, or Very High FHSZ (CAL FIRE 2025). Therefore, post-fire slope instability is not expected to occur. Accordingly, the project would not expose people or structures to significant risks associated with runoff, post-fire slope instability, drainage changes, flooding, or landslides. Therefore, impacts would be **less than significant**.

3.21 Mandatory Findings of Significance

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
XXI. 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 a rare or endangered plant or animal, 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.)	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

- 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 a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?*

Less-than-Significant Impact with Mitigation Incorporated. As discussed in Section 3.4 Biological Resources, construction of the proposed project would potentially result in potentially significant impacts to biological resources. However, with incorporation of mitigation measures **MM-BIO-1**, **MM-BIO-2**, **MM-BIO-3**, and **MM-BIO-4**, all potentially significant impacts would be reduced to a level below significance. The proposed project would not substantially degrade the quality of the environment, impact fish or wildlife species, or plant communities. As discussed in Section 3.5, Cultural Resources, and Section 3.18, Tribal Cultural Resources, unknown intact archaeological resources and tribal cultural resources could be encountered during ground disturbing activities within native soils resulting in potentially significant impacts. However, with implementation of mitigation measures **MM-CUL-1** and **MM-CUL-2** impacts would be reduced to less than significant. As discussed in Section 3.7, Geology and Soils, a unique paleontological resource or site, could be encountered during ground disturbing activities resulting in a **potentially significant impact**. However, with incorporation of mitigation measure **MM-GEO-1**, impacts would be reduced to less than significant. Overall, with the implementation of mitigation measures, project impacts would be **less than significant**.

- 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.)*

Less-than-Significant Impact. As provided in the analysis presented in Section 3, the proposed project would not result in significant impacts to Aesthetics, Agriculture and Forestry Resources, Air Quality, Energy, Greenhouse Gas Emissions, Hydrology and Water Quality, Land Use and Planning, Mineral Resources, Noise, Population and Housing, Public Services, Recreation, Transportation, Utilities and Service Systems. Mitigation measures recommended for Biological Resources, Cultural Resources, and Tribal Cultural Resources and Geology and Soils Resources would reduce impacts to below a level of significance.

The proposed project would incrementally contribute to construction-phase cumulative impacts for projects occurring within the vicinity of the project site. With mitigation, however, implementation of the proposed project would not result in any residually significant impacts that could contribute to a cumulative impact.

In the absence of residually significant impacts, the incremental accumulation of effects would not be cumulatively considerable and would be **less than significant**.

- c) ***Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?***

No Impact. No environmental effects have been identified that would have direct or indirect adverse effects on human beings.

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Appendix A

Air Quality Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Santa Cruz WWTP Electrical Upgrade Project
Construction Start Date	7/19/2028
Operational Year	2030
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	1.80000
Precipitation (days)	8.80000
Location	110 California St, Santa Cruz, CA 95060, USA
County	Santa Cruz
City	Santa Cruz
Air District	Monterey Bay ARD
Air Basin	North Central Coast
TAZ	3117
EDFZ	6
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric

Data Field	Value
App Version	2022.1.1.45

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Light Industry	4.30000	1000sqft	0.09871	4,300.00	0.00000	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.84220	0.72423	4.84284	9.28377	0.01343	0.15795	0.35346	0.51141	0.14509	0.08321	0.22831	—	1,761.53	1,761.53	0.07776	0.04000	1.25345	1,774.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.87343	0.74077	5.08031	9.39225	0.01343	0.17032	0.35346	0.52378	0.15674	0.08321	0.23995	—	1,753.98	1,753.98	0.08113	0.04066	0.03529	1,765.65

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Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.24461	0.20988	1.50413	2.66782	0.00391	0.04606	0.10453	0.14868	0.04231	0.02412	0.06643	—	509.394	509.394	0.02332	0.01213	0.16186	512.934
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.04464	0.03830	0.27450	0.48688	0.00071	0.00841	0.01908	0.02713	0.00772	0.00440	0.01212	—	84.3360	84.3360	0.00386	0.00201	0.02680	84.9220

2.2. Construction Emissions by Year

2.2.1. Total Construction Emissions by Year, Unmitigated

Includes both onsite and offsite emissions.

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	0.66446	0.55856	4.30102	7.18428	0.01102	0.11216	0.30180	0.41396	0.10333	0.06731	0.17064	—	1,264.31	1,264.31	0.06219	0.04000	1.00700	1,278.79
2029	0.84220	0.72423	4.84284	9.28377	0.01343	0.15795	0.35346	0.51141	0.14509	0.08321	0.22831	—	1,761.53	1,761.53	0.07776	0.03111	1.25345	1,774.00
2030	0.12641	0.11734	0.07122	1.09601	0.00000	0.00000	0.20581	0.20581	0.00000	0.04824	0.04824	—	203.677	203.677	0.00529	0.00841	0.65020	206.964
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	0.87343	0.74077	5.08031	9.39225	0.01343	0.17032	0.35346	0.52378	0.15674	0.08321	0.23995	—	1,753.98	1,753.98	0.08113	0.04066	0.03529	1,765.65
2029	0.84215	0.72308	4.87440	9.25532	0.01343	0.15795	0.35346	0.51141	0.14509	0.08321	0.22831	—	1,746.93	1,746.93	0.07037	0.03221	0.03247	1,758.32

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Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
2030	0.12707	0.11734	0.08869	1.07642	0.00000	0.00000	0.20581	0.20581	0.00000	0.04824	0.04824	—	195.052	195.052	0.00661	0.00907	0.01690	197.937
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	0.24252	0.20329	1.50413	2.59822	0.00390	0.04415	0.10453	0.14868	0.04065	0.02388	0.06453	—	474.184	474.184	0.02272	0.01213	0.16186	478.530
2029	0.24461	0.20988	1.41696	2.66782	0.00391	0.04606	0.10248	0.14854	0.04231	0.02412	0.06643	—	509.394	509.394	0.02332	0.00939	0.15764	512.934
2030	0.03153	0.02922	0.02046	0.25915	0.00000	0.00000	0.05214	0.05214	0.00000	0.01222	0.01222	—	49.7091	49.7091	0.00152	0.00231	0.07160	50.5071
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	0.04426	0.03710	0.27450	0.47418	0.00071	0.00806	0.01908	0.02713	0.00742	0.00436	0.01178	—	78.5066	78.5066	0.00376	0.00201	0.02680	79.2261
2029	0.04464	0.03830	0.25860	0.48688	0.00071	0.00841	0.01870	0.02711	0.00772	0.00440	0.01212	—	84.3360	84.3360	0.00386	0.00155	0.02610	84.9220
2030	0.00576	0.00533	0.00373	0.04729	0.00000	0.00000	0.00952	0.00952	0.00000	0.00223	0.00223	—	8.22991	8.22991	0.00025	0.00038	0.01185	8.36203

2.2.2. Onsite Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	0.50583	0.42240	3.98935	5.85184	0.00921	0.11040	0.05891	0.16931	0.10157	0.00892	0.11049	—	899.828	899.828	0.03650	0.00730	0.00000	902.916
2029	0.61980	0.51961	4.65309	7.32119	0.01316	0.15742	0.00000	0.15742	0.14482	0.00000	0.14482	—	1,377.67	1,377.67	0.05588	0.01118	0.00000	1,382.40
2030	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	0.63266	0.53042	4.84271	7.33377	0.01316	0.16979	0.05891	0.16979	0.15620	0.00892	0.15620	—	1,378.13	1,378.13	0.05590	0.01118	0.00000	1,382.86

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Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
2029	0.61980	0.51961	4.65309	7.32119	0.01316	0.15742	0.00000	0.15742	0.14482	0.00000	0.14482	—	1,377.67	1,377.67	0.05588	0.01118	0.00000	1,382.40
2030	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	0.18135	0.15171	1.41096	2.09987	0.00352	0.04374	0.01146	0.05520	0.04024	0.00174	0.04197	—	355.729	355.729	0.01443	0.00289	0.00000	356.950
2029	0.18072	0.15151	1.35677	2.13475	0.00384	0.04590	0.00000	0.04590	0.04223	0.00000	0.04223	—	401.709	401.709	0.01630	0.00326	0.00000	403.087
2030	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	0.03310	0.02769	0.25750	0.38323	0.00064	0.00798	0.00209	0.01007	0.00734	0.00032	0.00766	—	58.8950	58.8950	0.00239	0.00048	0.00000	59.0971
2029	0.03298	0.02765	0.24761	0.38959	0.00070	0.00838	0.00000	0.00838	0.00771	0.00000	0.00771	—	66.5075	66.5075	0.00270	0.00054	0.00000	66.7357
2030	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

2.2.3. Offsite Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	0.15863	0.13616	0.31167	1.33244	0.00181	0.00176	0.24289	0.24466	0.00176	0.05839	0.06016	—	364.480	364.480	0.02569	0.03270	1.00700	375.874
2029	0.22240	0.20462	0.18974	1.96259	0.00027	0.00053	0.35346	0.35399	0.00027	0.08321	0.08348	—	383.862	383.862	0.02188	0.01993	1.25345	391.602
2030	0.12641	0.11734	0.07122	1.09601	0.00000	0.00000	0.20581	0.20581	0.00000	0.04824	0.04824	—	203.677	203.677	0.00529	0.00841	0.65020	206.964
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
2028	0.24077	0.21035	0.34030	2.05849	0.00181	0.00181	0.35346	0.35399	0.00181	0.08321	0.08375	—	375.854	375.854	0.02701	0.03336	0.03529	382.788
2029	0.22235	0.20347	0.22131	1.93413	0.00027	0.00053	0.35346	0.35399	0.00027	0.08321	0.08348	—	369.259	369.259	0.01448	0.02103	0.03247	375.922
2030	0.12707	0.11734	0.08869	1.07642	0.00000	0.00000	0.20581	0.20581	0.00000	0.04824	0.04824	—	195.052	195.052	0.00661	0.00907	0.01690	197.937
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	0.06118	0.05158	0.09316	0.49835	0.00039	0.00041	0.09307	0.09349	0.00041	0.02214	0.02255	—	118.455	118.455	0.00829	0.00925	0.16186	121.580
2029	0.06388	0.05836	0.06019	0.53307	0.00008	0.00016	0.10248	0.10264	0.00008	0.02412	0.02420	—	107.686	107.686	0.00702	0.00613	0.15764	109.846
2030	0.03153	0.02922	0.02046	0.25915	0.00000	0.00000	0.05214	0.05214	0.00000	0.01222	0.01222	—	49.7091	49.7091	0.00152	0.00231	0.07160	50.5071
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	0.01116	0.00941	0.01700	0.09095	0.00007	0.00008	0.01699	0.01706	0.00008	0.00404	0.00412	—	19.6116	19.6116	0.00137	0.00153	0.02680	20.1290
2029	0.01166	0.01065	0.01098	0.09729	0.00001	0.00003	0.01870	0.01873	0.00001	0.00440	0.00442	—	17.8286	17.8286	0.00116	0.00102	0.02610	18.1863
2030	0.00576	0.00533	0.00373	0.04729	0.00000	0.00000	0.00952	0.00952	0.00000	0.00223	0.00223	—	8.22991	8.22991	0.00025	0.00038	0.01185	8.36203

2.3. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.06831	2.06831	7.39210	38.4389	0.08131	0.29568	0.00000	0.29568	0.29568	0.00000	0.29568	0.00000	7,712.03	7,712.03	0.30964	0.06042	0.00000	7,737.78
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.06831	2.06831	7.39210	38.4389	0.08131	0.29568	0.00000	0.29568	0.29568	0.00000	0.29568	0.00000	7,712.03	7,712.03	0.30964	0.06042	0.00000	7,737.78

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Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.14167	0.14167	0.50631	2.63280	0.00557	0.02025	0.00000	0.02025	0.02025	0.00000	0.02025	0.00000	528.221	528.221	0.02121	0.00414	0.00000	529.985
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.02585	0.02585	0.09240	0.48049	0.00102	0.00370	0.00000	0.00370	0.00370	0.00000	0.00370	0.00000	87.4530	87.4530	0.00351	0.00069	0.00000	87.7450

2.4. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Area	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Stationary	2.06831	2.06831	7.39210	38.4389	0.08131	0.29568	0.00000	0.29568	0.29568	0.00000	0.29568	0.00000	7,712.03	7,712.03	0.30964	0.06042	0.00000	7,737.78
Total	2.06831	2.06831	7.39210	38.4389	0.08131	0.29568	0.00000	0.29568	0.29568	0.00000	0.29568	0.00000	7,712.03	7,712.03	0.30964	0.06042	0.00000	7,737.78
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Area	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Stationary	2.06831	2.06831	7.39210	38.4389	0.08131	0.29568	0.00000	0.29568	0.29568	0.00000	0.29568	0.00000	7,712.03	7,712.03	0.30964	0.06042	0.00000	7,737.78
Total	2.06831	2.06831	7.39210	38.4389	0.08131	0.29568	0.00000	0.29568	0.29568	0.00000	0.29568	0.00000	7,712.03	7,712.03	0.30964	0.06042	0.00000	7,737.78
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Area	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Stationary	0.14167	0.14167	0.50631	2.63280	0.00557	0.02025	0.00000	0.02025	0.02025	0.00000	0.02025	0.00000	528.221	528.221	0.02121	0.00414	0.00000	529.985
Total	0.14167	0.14167	0.50631	2.63280	0.00557	0.02025	0.00000	0.02025	0.02025	0.00000	0.02025	0.00000	528.221	528.221	0.02121	0.00414	0.00000	529.985
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Area	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Stationary	0.02585	0.02585	0.09240	0.48049	0.00102	0.00370	0.00000	0.00370	0.00370	0.00000	0.00370	0.00000	87.4530	87.4530	0.00351	0.00069	0.00000	87.7450
Total	0.02585	0.02585	0.09240	0.48049	0.00102	0.00370	0.00000	0.00370	0.00370	0.00000	0.00370	0.00000	87.4530	87.4530	0.00351	0.00069	0.00000	87.7450

3. Construction Emissions Details

3.1. Demolition (2028)

3.1.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.50583	0.42240	3.98935	5.85184	0.00921	0.11040	—	0.11040	0.10157	—	0.10157	—	899.828	899.828	0.03650	0.00730	—	902.916
Demolition	—	—	—	—	—	—	0.05891	0.05891	—	0.00892	0.00892	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.50583	0.42240	3.98935	5.85184	0.00921	0.11040	—	0.11040	0.10157	—	0.10157	—	899.828	899.828	0.03650	0.00730	—	902.916
Demolition	—	—	—	—	—	—	0.05891	0.05891	—	0.00892	0.00892	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09839	0.08217	0.77601	1.13830	0.00179	0.02147	—	0.02147	0.01976	—	0.01976	—	175.035	175.035	0.00710	0.00142	—	175.636
Demolition	—	—	—	—	—	—	0.01146	0.01146	—	0.00174	0.00174	—	—	—	—	—	—	—

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01796	0.01500	0.14162	0.20774	0.00033	0.00392	—	0.00392	0.00361	—	0.00361	—	28.9790	28.9790	0.00118	0.00024	—	29.0785
Demolition	—	—	—	—	—	—	0.00209	0.00209	—	0.00032	0.00032	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.1.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14143	0.13236	0.08605	1.23495	0.00000	0.00000	0.20581	0.20581	0.00000	0.04824	0.04824	—	210.487	210.487	0.01237	0.00841	0.76866	214.070
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.01720	0.00379	0.22562	0.09749	0.00181	0.00176	0.03708	0.03884	0.00176	0.01015	0.01192	—	153.993	153.993	0.01332	0.02429	0.23834	161.804
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14209	0.12528	0.10418	1.21839	0.00000	0.00000	0.20581	0.20581	0.00000	0.04824	0.04824	—	201.565	201.565	0.01370	0.00907	0.01993	204.629
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.01706	0.00366	0.23612	0.09824	0.00181	0.00181	0.03708	0.03889	0.00181	0.01015	0.01196	—	154.002	154.002	0.01332	0.02429	0.00618	161.581

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02700	0.02385	0.01863	0.22404	0.00000	0.00000	0.03981	0.03981	0.00000	0.00933	0.00933	—	39.2141	39.2141	0.00254	0.00176	0.06467	39.8678
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00333	0.00072	0.04533	0.01902	0.00035	0.00034	0.00718	0.00752	0.00034	0.00197	0.00231	—	29.9555	29.9555	0.00259	0.00473	0.02002	31.4486
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00493	0.00435	0.00340	0.04089	0.00000	0.00000	0.00727	0.00727	0.00000	0.00170	0.00170	—	6.49235	6.49235	0.00042	0.00029	0.01071	6.60057
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00061	0.00013	0.00827	0.00347	0.00006	0.00006	0.00131	0.00137	0.00006	0.00036	0.00042	—	4.95948	4.95948	0.00043	0.00078	0.00331	5.20668

3.2. Building Construction (2028)

3.2.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.63266	0.53042	4.84271	7.33377	0.01316	0.16979	—	0.16979	0.15620	—	0.15620	—	1,378.13	1,378.13	0.05590	0.01118	—	1,382.86
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08295	0.06955	0.63495	0.96157	0.00173	0.02226	—	0.02226	0.02048	—	0.02048	—	180.694	180.694	0.00733	0.00147	—	181.314
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01514	0.01269	0.11588	0.17549	0.00031	0.00406	—	0.00406	0.00374	—	0.00374	—	29.9159	29.9159	0.00121	0.00024	—	30.0186
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.2.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.23682	0.20880	0.17364	2.03064	0.00000	0.00000	0.34302	0.34302	0.00000	0.08040	0.08040	—	335.942	335.942	0.02283	0.01511	0.03321	341.049
Vendor	0.00395	0.00155	0.06396	0.02784	0.00027	0.00053	0.01043	0.01097	0.00053	0.00281	0.00334	—	39.9128	39.9128	0.00240	0.00592	0.00207	41.7389
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Worker	0.03033	0.02680	0.02093	0.25169	0.00000	0.00000	0.04472	0.04472	0.00000	0.01048	0.01048	—	44.0534	44.0534	0.00285	0.00198	0.07265	44.7878
Vendor	0.00052	0.00020	0.00828	0.00359	0.00004	0.00007	0.00136	0.00143	0.00007	0.00037	0.00044	—	5.23233	5.23233	0.00031	0.00078	0.00453	5.47603
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00553	0.00489	0.00382	0.04593	0.00000	0.00000	0.00816	0.00816	0.00000	0.00191	0.00191	—	7.29355	7.29355	0.00047	0.00033	0.01203	7.41513
Vendor	0.00010	0.00004	0.00151	0.00065	0.00001	0.00001	0.00025	0.00026	0.00001	0.00007	0.00008	—	0.86627	0.86627	0.00005	0.00013	0.00075	0.90662
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.3. Building Construction (2029)

3.3.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.61980	0.51961	4.65309	7.32119	0.01316	0.15742	—	0.15742	0.14482	—	0.14482	—	1,377.67	1,377.67	0.05588	0.01118	—	1,382.40
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Road Equipment	0.61980	0.51961	4.65309	7.32119	0.01316	0.15742	—	0.15742	0.14482	—	0.14482	—	1,377.67	1,377.67	0.05588	0.01118	—	1,382.40
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18072	0.15151	1.35677	2.13475	0.00384	0.04590	—	0.04590	0.04223	—	0.04223	—	401.709	401.709	0.01630	0.00326	—	403.087
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03298	0.02765	0.24761	0.38959	0.00070	0.00838	—	0.00838	0.00771	—	0.00771	—	66.5075	66.5075	0.00270	0.00054	—	66.7357
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.3.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21840	0.20329	0.13160	1.93656	0.00000	0.00000	0.34302	0.34302	0.00000	0.08040	0.08040	—	345.028	345.028	0.01952	0.01401	1.18162	350.872
Vendor	0.00399	0.00133	0.05814	0.02603	0.00027	0.00053	0.01043	0.01097	0.00027	0.00281	0.00308	—	38.8343	38.8343	0.00236	0.00592	0.07183	40.7291
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21840	0.20219	0.16073	1.90754	0.00000	0.00000	0.34302	0.34302	0.00000	0.08040	0.08040	—	330.411	330.411	0.01213	0.01511	0.03061	335.248
Vendor	0.00395	0.00128	0.06058	0.02660	0.00027	0.00053	0.01043	0.01097	0.00027	0.00281	0.00308	—	38.8484	38.8484	0.00236	0.00592	0.00186	40.6733
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06272	0.05799	0.04278	0.52545	0.00000	0.00000	0.09946	0.09946	0.00000	0.02330	0.02330	—	96.3605	96.3605	0.00634	0.00441	0.14862	97.9806
Vendor	0.00116	0.00037	0.01741	0.00763	0.00008	0.00016	0.00303	0.00318	0.00008	0.00082	0.00089	—	11.3252	11.3252	0.00069	0.00173	0.00902	11.8658
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01145	0.01058	0.00781	0.09589	0.00000	0.00000	0.01815	0.01815	0.00000	0.00425	0.00425	—	15.9536	15.9536	0.00105	0.00073	0.02461	16.2218
Vendor	0.00021	0.00007	0.00318	0.00139	0.00001	0.00003	0.00055	0.00058	0.00001	0.00015	0.00016	—	1.87501	1.87501	0.00011	0.00029	0.00149	1.96451
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.4. Substantial Completion (2030)

3.4.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.4.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12641	0.11734	0.07122	1.09601	0.00000	0.00000	0.20581	0.20581	0.00000	0.04824	0.04824	—	203.677	203.677	0.00529	0.00841	0.65020	206.964
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Worker	0.12707	0.11734	0.08869	1.07642	0.00000	0.00000	0.20581	0.20581	0.00000	0.04824	0.04824	—	195.052	195.052	0.00661	0.00907	0.01690	197.937
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03153	0.02922	0.02046	0.25915	0.00000	0.00000	0.05214	0.05214	0.00000	0.01222	0.01222	—	49.7091	49.7091	0.00152	0.00231	0.07160	50.5071
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00576	0.00533	0.00373	0.04729	0.00000	0.00000	0.00952	0.00952	0.00000	0.00223	0.00223	—	8.22991	8.22991	0.00025	0.00038	0.01185	8.36203
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Mobile source emissions results are presented in Sections 2.6. No further detailed breakdown of emissions is available.

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	2.06831	2.06831	7.39210	38.4389	0.08131	0.29568	0.00000	0.29568	0.29568	0.00000	0.29568	0.00000	7,712.03	7,712.03	0.30964	0.06042	0.00000	7,737.78
Total	2.06831	2.06831	7.39210	38.4389	0.08131	0.29568	0.00000	0.29568	0.29568	0.00000	0.29568	0.00000	7,712.03	7,712.03	0.30964	0.06042	0.00000	7,737.78
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	2.06831	2.06831	7.39210	38.4389	0.08131	0.29568	0.00000	0.29568	0.29568	0.00000	0.29568	0.00000	7,712.03	7,712.03	0.30964	0.06042	0.00000	7,737.78
Total	2.06831	2.06831	7.39210	38.4389	0.08131	0.29568	0.00000	0.29568	0.29568	0.00000	0.29568	0.00000	7,712.03	7,712.03	0.30964	0.06042	0.00000	7,737.78
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.02585	0.02585	0.09240	0.48049	0.00102	0.00370	0.00000	0.00370	0.00370	0.00000	0.00370	0.00000	87.4530	87.4530	0.00351	0.00069	0.00000	87.7450

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Total	0.02585	0.02585	0.09240	0.48049	0.00102	0.00370	0.00000	0.00370	0.00370	0.00000	0.00370	0.00000	87.4530	87.4530	0.00351	0.00069	0.00000	87.7450

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

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Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	7/19/2028	10/25/2028	5.00000	71.0000	—
Building Construction	Building Construction	10/26/2028	5/29/2029	5.00000	154.000	—
Substantial Completion	Building Construction	6/18/2030	10/24/2030	5.00000	93.0000	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

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Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.000000	8.00000	33.0000	0.73000
Demolition	Rubber Tired Dozers	Diesel	Average	1.000000	1.000000	367.000	0.40000
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	2.00000	6.00000	84.0000	0.37000
Demolition	Bore/Drill Rigs	Diesel	Average	1.000000	1.000000	83.0000	0.50000
Building Construction	Cranes	Diesel	Average	1.000000	4.00000	367.000	0.29000
Building Construction	Forklifts	Diesel	Average	2.00000	6.00000	82.0000	0.20000
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	2.00000	8.00000	84.0000	0.37000
Building Construction	Plate Compactors	Diesel	Average	1.000000	4.00000	8.00000	0.43000
Building Construction	Cement and Mortar Mixers	Diesel	Average	2.00000	4.00000	10.00000	0.56000

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	Worker	30.0000	9.71000	LDA,LDT1,LDT2
Demolition	Vendor	—	6.06000	HHDT,MHDT
Demolition	Hauling	2.00000	20.0000	HHDT
Demolition	Onsite truck	—	—	HHDT
Building Construction	Worker	50.0000	9.71000	LDA,LDT1,LDT2

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Building Construction	Vendor	2.00000	6.06000	HHDT,MHDT
Building Construction	Hauling	0.00000	20.0000	HHDT
Building Construction	Onsite truck	—	—	HHDT
Substantial Completion	Worker	30.0000	9.71000	LDA,LDT1,LDT2
Substantial Completion	Vendor	0.00000	6.06000	HHDT,MHDT
Substantial Completion	Hauling	0.00000	20.0000	HHDT
Substantial Completion	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Demolition	0.00000	0.00000	0.00000	4,300.00	0.00000

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2028	0.00000	203.983	0.03300	0.00400
2029	0.00000	203.983	0.03300	0.00400
2030	0.00000	203.983	0.03300	0.00400

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMt/Weekday	VMt/Saturday	VMt/Sunday	VMt/Year
Total all Land Uses	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

5.10. Operational Area Sources

5.10.1. Hearths

Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
General Light Industry	Wood Fireplaces	0	0
General Light Industry	Gas Fireplaces	0	0

Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
General Light Industry	Propane Fireplaces	0	0
General Light Industry	Electric Fireplaces	0	0
General Light Industry	No Fireplaces	0	0
General Light Industry	Conventional Wood Stoves	0	0
General Light Industry	Catalytic Wood Stoves	0	0
General Light Industry	Non-Catalytic Wood Stoves	0	0
General Light Industry	Pellet Wood Stoves	0	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0.00000	0.00000	6,450.00	2,150.00	—

5.10.3. Landscape Equipment

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Light Industry	0.00000	0.00000

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
Emergency Generator	Diesel	1.000000	2.00000	50.0000	3,353.00	1.000000

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
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5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
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5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
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6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	4.83000	annual days of extreme heat

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Climate Hazard	Result for Project Location	Unit
Extreme Precipitation	13.1500	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	5.68000	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about $\frac{3}{4}$ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	13.6154
AQ-PM	3.97013
AQ-DPM	45.1400
Drinking Water	18.2590
Lead Risk Housing	54.0139
Pesticides	9.55172
Toxic Releases	13.5034
Traffic	21.6750
Effect Indicators	—
CleanUp Sites	69.3542
Groundwater	93.8237
Haz Waste Facilities/Generators	75.2482
Impaired Water Bodies	93.3641
Solid Waste	0.00000
Sensitive Population	—
Asthma	18.3824
Cardio-vascular	21.4357
Low Birth Weights	44.2135
Socioeconomic Factor Indicators	—

Indicator	Result for Project Census Tract
Education	48.5826
Housing	98.8213
Linguistic	30.6943
Poverty	89.9372
Unemployment	36.4394

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	10.56075966
Employed	41.67842936
Median HI	5.941229308
Education	—
Bachelor's or higher	70.30668549
High school enrollment	100
Preschool enrollment	11.77980239
Transportation	—
Auto Access	15.29577826
Active commuting	95.85525472
Social	—

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Indicator	Result for Project Census Tract
2-parent households	57.12819197
Voting	27.7685102
Neighborhood	—
Alcohol availability	22.94366739
Park access	81.35506224
Retail density	84.74271782
Supermarket access	73.29654818
Tree canopy	79.43025792
Housing	—
Homeownership	9.70101373
Housing habitability	20.14628513
Low-inc homeowner severe housing cost burden	47.86346721
Low-inc renter severe housing cost burden	8.17400231
Uncrowded housing	47.26036186
Health Outcomes	—
Insured adults	40.25407417
Arthritis	0.0
Asthma ER Admissions	75.3
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0

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Indicator	Result for Project Census Tract
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	22.6
Cognitively Disabled	36.6
Physically Disabled	74.5
Heart Attack ER Admissions	81.0
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	87.7
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	11.9
Children	94.5

Indicator	Result for Project Census Tract
Elderly	71.6
English Speaking	62.7
Foreign-born	44.2
Outdoor Workers	79.6
Climate Change Adaptive Capacity	—
Impervious Surface Cover	27.3
Traffic Density	36.9
Traffic Access	0.0
Other Indices	—
Hardship	59.3
Other Decision Support	—
2016 Voting	61.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	40.0000
Healthy Places Index Score for Project Location (b)	40.0000
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

8.1. Justifications

Screen	Justification
Construction: Construction Phases	Phases and durations provided by City
Construction: Off-Road Equipment	Equipment based on input from the City. Substantial Completion/ Punchlist activities would consist of worker trips only for inspection, no off-road equipment.
Construction: Trips and VMT	Trips based on City input
Construction: On-Road Fugitive Dust	Roadway network is paved
Operations: Consumer Products	No additional area sources would be required for the project
Operations: Architectural Coatings	No additional area sources required for the project
Operations: Energy Use	No additional electricity or natural gas anticipated for the project

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Screen	Justification
Operations: Water and Waste Water	No additional water/wastewater anticipated for the project
Operations: Solid Waste	No additional solid waste
Operations: Refrigerants	No additional refrigerants
Operations: Generators + Pumps EF	Proposed 2.5MW Tier 4 emergency generator

8.4. Construction

8.4.1. Construction Phases

Phase Type	Phase Name	Model Parameter	Default Value	New Value
Demolition	Demolition	End Date	8/2/2028	10/25/2028
Demolition	Demolition	Work Days per Phase	10.00000	71.0000
Building Construction	Building Construction	Start Date	8/8/2028	10/26/2028
Building Construction	Building Construction	End Date	12/26/2028	5/29/2029
Building Construction	Building Construction	Work Days per Phase	100.0000	154.000

8.4.2. Off-Road Equipment

Phase Name	Equipment Type	Model Parameter	Default Value	New Value
Demolition	Bore/Drill Rigs	Hours Per Day	2.00000	1.000000
Building Construction	Plate Compactors	Hours Per Day	2.00000	4.00000
Building Construction	Cement and Mortar Mixers	Hours Per Day	2.00000	4.00000

8.4.6. Trips and VMT

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Phase Name	Trip Type	Model Parameter	Default Value	New Value
Demolition	Worker	One-Way Trips per Day	12.5000	30.0000
Demolition	Hauling	One-Way Trips per Day	0.70423	2.00000
Building Construction	Worker	One-Way Trips per Day	1.80600	50.0000
Building Construction	Vendor	One-Way Trips per Day	0.70477	2.00000
Substantial Completion	Worker	One-Way Trips per Day	1.80600	30.0000
Substantial Completion	Vendor	One-Way Trips per Day	0.70477	0.00000

8.4.7. On-Road Fugitive Dust

Phase Name	Model Parameter	Units	Default Value	New Value
Demolition	Worker Trip Paved	%	52.0000	100.0000
Demolition	Vendor Trip Paved	%	52.0000	100.0000
Demolition	Hauling Trip Paved	%	52.0000	100.0000
Building Construction	Worker Trip Paved	%	52.0000	100.0000
Building Construction	Vendor Trip Paved	%	52.0000	100.0000
Building Construction	Hauling Trip Paved	%	52.0000	100.0000
Substantial Completion	Worker Trip Paved	%	52.0000	100.0000
Substantial Completion	Vendor Trip Paved	%	52.0000	100.0000
Substantial Completion	Hauling Trip Paved	%	52.0000	100.0000

8.5. Operations

8.5.2. Area Sources

8.5.2.2. Consumer Products

Model Parameter	Units	Default Value	New Value
General Category	lb/sqft/day	0.00002	0.00000
City Park/Golf Course Pesticides/Fertilizers	lb/sqft/day	< 0.000005	0.00000
Parking Degreaser	lb/sqft/day	< 0.000005	0.00000

8.5.5. Solid Waste

Land Use	Model Parameter	Units	Default Value	New Value
General Light Industry	Solid Waste Generation Rate	ton/1000sqft/yr	1.24000	0.00000

8.5.8. Stationary Sources

8.5.8.2. Generators + Pumps EF

Equipment Type	Model Parameter	Default Value	New Value
Emergency Generator	TOG	1.12039	0.13990
Emergency Generator	ROG	1.01956	0.13990
Emergency Generator	NOx	4.56000	0.50000
Emergency Generator	SO ,	0.00490	0.00550
Emergency Generator	PM10E	0.15000	0.02000
Emergency Generator	PM2.5E	0.15000	0.02000

Santa Cruz WWTP - Existing Generators Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Santa Cruz WWTP - Existing Generators
Operational Year	2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	1.80000
Precipitation (days)	8.80000
Location	110 California St, Santa Cruz, CA 95060, USA
County	Santa Cruz
City	Santa Cruz
Air District	Monterey Bay ARD
Air Basin	North Central Coast
TAZ	3117
EDFZ	6
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.46

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Light Industry	4.30000	1000sqft	0.09871	4,300.00	0.00000	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.3. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	11.9162	11.9162	150.017	31.9185	0.05852	10.6395	0.00000	10.6395	10.6395	0.00000	10.6395	0.00000	5,549.99	5,549.99	0.22284	0.04348	0.00000	5,568.52
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	11.9162	11.9162	150.017	31.9185	0.05852	10.6395	0.00000	10.6395	10.6395	0.00000	10.6395	0.00000	5,549.99	5,549.99	0.22284	0.04348	0.00000	5,568.52
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.32647	0.32647	4.11006	0.87448	0.00160	0.29149	0.00000	0.29149	0.29149	0.00000	0.29149	0.00000	152.055	152.055	0.00611	0.00119	0.00000	152.562

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Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.05958	0.05958	0.75009	0.15959	0.00029	0.05320	0.00000	0.05320	0.05320	0.00000	0.05320	0.00000	25.1744	25.1744	0.00101	0.00020	0.00000	25.2584

2.4. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Area	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Stationary	11.9162	11.9162	150.017	31.9185	0.05852	10.6395	0.00000	10.6395	10.6395	0.00000	10.6395	0.00000	5,549.99	5,549.99	0.22284	0.04348	0.00000	5,568.52
Total	11.9162	11.9162	150.017	31.9185	0.05852	10.6395	0.00000	10.6395	10.6395	0.00000	10.6395	0.00000	5,549.99	5,549.99	0.22284	0.04348	0.00000	5,568.52
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Area	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Stationary	11.9162	11.9162	150.017	31.9185	0.05852	10.6395	0.00000	10.6395	10.6395	0.00000	10.6395	0.00000	5,549.99	5,549.99	0.22284	0.04348	0.00000	5,568.52
Total	11.9162	11.9162	150.017	31.9185	0.05852	10.6395	0.00000	10.6395	10.6395	0.00000	10.6395	0.00000	5,549.99	5,549.99	0.22284	0.04348	0.00000	5,568.52

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Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Area	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Stationary	0.32647	0.32647	4.11006	0.87448	0.00160	0.29149	0.00000	0.29149	0.29149	0.00000	0.29149	0.00000	152.055	152.055	0.00611	0.00119	0.00000	152.562
Total	0.32647	0.32647	4.11006	0.87448	0.00160	0.29149	0.00000	0.29149	0.29149	0.00000	0.29149	0.00000	152.055	152.055	0.00611	0.00119	0.00000	152.562
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Area	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Stationary	0.05958	0.05958	0.75009	0.15959	0.00029	0.05320	0.00000	0.05320	0.05320	0.00000	0.05320	0.00000	25.1744	25.1744	0.00101	0.00020	0.00000	25.2584
Total	0.05958	0.05958	0.75009	0.15959	0.00029	0.05320	0.00000	0.05320	0.05320	0.00000	0.05320	0.00000	25.1744	25.1744	0.00101	0.00020	0.00000	25.2584

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Mobile source emissions results are presented in Sections 2.6. No further detailed breakdown of emissions is available.

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Architectural Coatings	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

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Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Total	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

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Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	11.9162	11.9162	150.017	31.9185	0.05852	10.6395	0.00000	10.6395	10.6395	0.00000	10.6395	0.00000	5,549.99	5,549.99	0.22284	0.04348	0.00000	5,568.52
Total	11.9162	11.9162	150.017	31.9185	0.05852	10.6395	0.00000	10.6395	10.6395	0.00000	10.6395	0.00000	5,549.99	5,549.99	0.22284	0.04348	0.00000	5,568.52
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Emergency Generator	11.9162	11.9162	150.017	31.9185	0.05852	10.6395	0.00000	10.6395	10.6395	0.00000	10.6395	0.00000	5,549.99	5,549.99	0.22284	0.04348	0.00000	5,568.52
Total	11.9162	11.9162	150.017	31.9185	0.05852	10.6395	0.00000	10.6395	10.6395	0.00000	10.6395	0.00000	5,549.99	5,549.99	0.22284	0.04348	0.00000	5,568.52
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.05958	0.05958	0.75009	0.15959	0.00029	0.05320	0.00000	0.05320	0.05320	0.00000	0.05320	0.00000	25.1744	25.1744	0.00101	0.00020	0.00000	25.2584
Total	0.05958	0.05958	0.75009	0.15959	0.00029	0.05320	0.00000	0.05320	0.05320	0.00000	0.05320	0.00000	25.1744	25.1744	0.00101	0.00020	0.00000	25.2584

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

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Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Total all Land Uses	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

5.10. Operational Area Sources

5.10.1. Hearths

Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
General Light Industry	Wood Fireplaces	0	0
General Light Industry	Gas Fireplaces	0	0
General Light Industry	Propane Fireplaces	0	0
General Light Industry	Electric Fireplaces	0	0
General Light Industry	No Fireplaces	0	0
General Light Industry	Conventional Wood Stoves	0	0
General Light Industry	Catalytic Wood Stoves	0	0
General Light Industry	Non-Catalytic Wood Stoves	0	0
General Light Industry	Pellet Wood Stoves	0	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0.00000	0.00000	6,450.00	2,150.00	—

5.10.3. Landscape Equipment

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Light Industry	0.00000	0.00000

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
Emergency Generator	Diesel	2.00000	2.00000	20.0000	536.000	1.000000
Emergency Generator	Diesel	1.000000	2.00000	20.0000	1,341.00	1.000000

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
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5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
--------------------	---------------	-------------

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
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6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	4.83000	annual days of extreme heat
Extreme Precipitation	13.1500	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	5.68000	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about $\frac{3}{4}$ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

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Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A

Santa Cruz WWTP - Existing Generators Detailed Report, 10/7/2026

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	13.6154
AQ-PM	3.97013
AQ-DPM	45.1400
Drinking Water	18.2590
Lead Risk Housing	54.0139
Pesticides	9.55172

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Indicator	Result for Project Census Tract
Toxic Releases	13.5034
Traffic	21.6750
Effect Indicators	—
CleanUp Sites	69.3542
Groundwater	93.8237
Haz Waste Facilities/Generators	75.2482
Impaired Water Bodies	93.3641
Solid Waste	0.00000
Sensitive Population	—
Asthma	18.3824
Cardio-vascular	21.4357
Low Birth Weights	44.2135
Socioeconomic Factor Indicators	—
Education	48.5826
Housing	98.8213
Linguistic	30.6943
Poverty	89.9372
Unemployment	36.4394

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

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Indicator	Result for Project Census Tract
Economic	—
Above Poverty	10.56075966
Employed	41.67842936
Median HI	5.941229308
Education	—
Bachelor's or higher	70.30668549
High school enrollment	100
Preschool enrollment	11.77980239
Transportation	—
Auto Access	15.29577826
Active commuting	95.85525472
Social	—
2-parent households	57.12819197
Voting	27.7685102
Neighborhood	—
Alcohol availability	22.94366739
Park access	81.35506224
Retail density	84.74271782
Supermarket access	73.29654818
Tree canopy	79.43025792
Housing	—

Santa Cruz WWTP - Existing Generators Detailed Report, 10/7/2026

Indicator	Result for Project Census Tract
Homeownership	9.70101373
Housing habitability	20.14628513
Low-inc homeowner severe housing cost burden	47.86346721
Low-inc renter severe housing cost burden	8.17400231
Uncrowded housing	47.26036186
Health Outcomes	—
Insured adults	40.25407417
Arthritis	0.0
Asthma ER Admissions	75.3
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	22.6
Cognitively Disabled	36.6
Physically Disabled	74.5
Heart Attack ER Admissions	81.0
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0

Santa Cruz WWTP - Existing Generators Detailed Report, 10/7/2026

Indicator	Result for Project Census Tract
Obesity	0.0
Pedestrian Injuries	87.7
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	11.9
Children	94.5
Elderly	71.6
English Speaking	62.7
Foreign-born	44.2
Outdoor Workers	79.6
Climate Change Adaptive Capacity	—
Impervious Surface Cover	27.3
Traffic Density	36.9
Traffic Access	0.0
Other Indices	—

Indicator	Result for Project Census Tract
Hardship	59.3
Other Decision Support	—
2016 Voting	61.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	40.0000
Healthy Places Index Score for Project Location (b)	40.0000
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

8.1. Justifications

Screen	Justification
Operations: Consumer Products	No existing area sources modeled as project would not change these operations
Operations: Architectural Coatings	No existing area sources modeled as project would not change these operations
Operations: Energy Use	No existing energy sources modeled as project would not change these operations
Operations: Water and Waste Water	No existing water/wastewater sources modeled as project would not change these operations
Operations: Solid Waste	No existing solid waste sources modeled as project would not change these operations
Operations: Refrigerants	No existing refrigerant sources modeled as project would not change these operations
Operations: Emergency Generators and Fire Pumps	Three existing generators assumed to each operate up to 2 hours on a day and up to 20 hours per year for the based on CARB ATCM 93115
Operations: Generators + Pumps EF	Existing generators to be removed have pre-Tier engines according to the City

8.5. Operations

8.5.2. Area Sources

8.5.2.2. Consumer Products

Model Parameter	Units	Default Value	New Value
General Category	lb/sqft/day	0.00002	0.00000
City Park/Golf Course Pesticides/Fertilizers	lb/sqft/day	< 0.000005	0.00000
Parking Degreaser	lb/sqft/day	< 0.000005	0.00000

8.5.5. Solid Waste

Land Use	Model Parameter	Units	Default Value	New Value
General Light Industry	Solid Waste Generation Rate	ton/1000sqft/yr	1.24000	0.00000

8.5.8. Stationary Sources

8.5.8.1. Emergency Generators and Fire Pumps

Equipment Type	Model Parameter	Default Value	New Value
Emergency Generator	Number per Day	1.000000	2.00000
Emergency Generator	Hours per Year	50.0000	20.0000
Emergency Generator	Hours per Year	50.0000	20.0000

8.5.8.2. Generators + Pumps EF

Equipment Type	Model Parameter	Default Value	New Value
Emergency Generator	TOG	1.12039	1.12000
Emergency Generator	ROG	1.01956	1.12000
Emergency Generator	NOx	4.56000	14.1000
Emergency Generator	CO	2.60000	3.00000
Emergency Generator	SO ₂	0.00490	0.00550
Emergency Generator	PM10E	0.15000	1.000000
Emergency Generator	PM2.5E	0.15000	1.000000
Emergency Generator	TOG	1.12039	1.12000
Emergency Generator	ROG	1.01956	1.12000

Santa Cruz WWTP - Existing Generators Detailed Report, 10/7/2026

Equipment Type	Model Parameter	Default Value	New Value
Emergency Generator	NOx	2.85000	14.1000
Emergency Generator	CO	2.60000	3.00000
Emergency Generator	SO ,	0.00490	0.00550
Emergency Generator	PM10E	0.15000	1.000000
Emergency Generator	PM2.5E	0.15000	1.000000

Appendix B

Biological Resources Technical Report

Biological Resources Technical Report

Wastewater Energy and Electrical Resiliency Project

SEPTEMBER 2026

Prepared for:

**CITY OF SANTA CRUZ
PUBLIC WORKS DEPARTMENT**

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
BSA	Biological Study Area
CCA	California Coastal Act
CCC	California Coastal Commission
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
City	City of Santa Cruz
CNDDB	California Natural Diversity Database
Creeks Plan	City-wide Creeks and Wetlands Management Plan
CRPR	California Rare Plant Rank
CWA	Clean Water Act
ESHA	environmentally sensitive habitat area
FESA	federal Endangered Species Act
IPaC	Information for Planning and Consultation
kV	kilovolt
kW	kilowatt
MBTA	Migratory Bird Treaty Act
MGD	million gallons per day
NMFS	National Marine Fisheries Service
O&M HCP	Operations and Maintenance Habitat Conservation Plan
project	Wastewater Energy and Electrical Resiliency Project
RWQCB	Regional Water Quality Control Board
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
WWTF	wastewater treatment facility

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1 Project Location

The City of Santa Cruz (City) engaged Dudek to evaluate biological resources within the Wastewater Energy and Electrical Resiliency Project (project) site to ensure compliance with the California Environmental Quality Act (CEQA). This report presents technical findings and assesses the proposed project for potential impacts on biological resources. The report focuses on summarizing biological resource findings and evaluating potential effects in accordance with relevant environmental laws and regulations. It also identifies potentially significant impacts and recommends mitigation measures to reduce such impacts to less than significant.

The project is located within the existing City of Santa Cruz Wastewater Treatment Facility (WWTF) at 110 California Street in the City of Santa Cruz, California, consisting of five parcels (Assessor's Parcel Numbers): 004-331-02, 004-331-03, 004-331-05, 004-331-06, and 004-331-08 (see Figure 1 and Figure 2; all figures can be found in Appendix A). The project is within Section 24 of Township 11 South, Range 2 West, Mount Diablo Meridian, as depicted on the Santa Cruz U.S. Geological Survey quadrangle. The WWTF is adjacent to La Barranca Park to the south and Neary Lagoon Park and Wildlife Refuge to the north. Surrounding areas are residential neighborhoods along Bay Street and California Street with the Southern Pacific Railroad and Coastal Rail Trail running southwest of the facility. The majority of project work will take place within the developed footprint of the WWTF. The Biological Study Area (BSA) comprises the approximately 6.14-acre project footprint plus a 100-foot survey buffer.

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2 Project Description and Need

2.1 Project Background

The City of Santa Cruz has been treating sewage at the WWTF next to the Neary Lagoon Park and Wildlife Refuge since 1928. The facility has been expanded several times to accommodate City growth and flows from the Santa Cruz County Sanitation District. Today the WWTF serves approximately 145,000 residents, with a rated dry weather design capacity of 17 million gallons per day (MGD), an average daily flow of less than 10 MGD, and a wet weather design capacity of 81 MGD.

The objectives of the project are to modernize and replace electrical infrastructure that is beyond the expected life expectancy at the WWTF and to improve electrical system reliability, resiliency, operational flexibility, worker safety, and emergency preparedness in support of the overall long-term operations of the facility. Most of the electrical distribution systems at the facility were installed in the 1980's and 1990's. While the equipment has been diligently maintained, it has exceeded its useful life and creates operational and maintenance challenges. Replacements and upgrades are needed to improve reliability, safety, maintainability and alignment with current standards to establish a 30-to-40-year service lifespan. Project components are further described below.

2.2 Project Components

The project includes replacement of deteriorated underground electrical distribution lines, completion of a redundant facility-wide electrical loop, replacement and consolidation of substations, transformers, and switchgear, demolition of the existing maintenance building, construction of a new main electrical building, installation of a new centralized standby power generation system, and upgrades to electrical equipment serving treatment processes such as interstage pumps and aeration blowers. The project would also replace obsolete medium-voltage equipment with modern electrical systems, incorporate upgraded controls and variable-frequency drives to improve operational efficiency, and provide infrastructure capable of supporting long-term WWTF operations.

2.2.1 Electrical Distribution System Modernization

The project would replace aging 21 kilovolt (kV) electrical distribution equipment and construct a fully redundant A/B loop electrical distribution system throughout the WWTF. Existing underground conduit systems, duct banks, utility holes, handholes, and utility corridors would be reused where feasible. New underground conduits and conductors would be installed where necessary to replace obsolete infrastructure and complete gaps in the existing electrical loop. As part of the electrical system upgrades, an approximately 625-foot-long duct bank will be excavated along the perimeter of the WWTF. Dimensions of the duct bank trenches are approximately 3 feet wide and up to 6 feet deep within the existing footprint of the WWTF. The trenching footprint near Substation 3A/3B may require adjustment of the proposed alignment depending on subsurface conditions. Electric cable and other equipment would be installed within the excavated duct bank footprint and tie into the Pacific Gas & Electric switchgear through existing conduits adjacent to Bay Street following construction (see Figure 2).

2.2.2 Substation and Equipment Replacement

Eight existing substations, transformers, switchgear, protective equipment, and related infrastructure would be replaced throughout the WWTF. Prior to excavation activities and installation of new equipment, existing gear and equipment will be removed back to a safe junction point. Where possible, removed equipment and materials will be disassembled and reused or recycled. Existing liquid-filled transformers at the substations will be removed, drained and salvaged or recycled. The mineral oil drained from the transformers will be disposed of at an appropriate landfill. None of the transformers contain polychlorinated biphenyls as they were installed after the manufacturing ban on their use in the United States. Placement of the new substations and associated equipment would require minor excavation within the existing substation footprints (see Figure 2). Excavation depths will vary from 2 feet to 6 feet depending on conditions. Equipment removal and replacement would largely occur within existing developed equipment areas, existing substations, and adjacent hard-scape areas. Proposed work at Substation 3A/3B may require the trimming of one large eucalyptus (*Eucalyptus globulus*) tree in order to place the foundation for the new equipment. Treatment plant processes would remain operational through phased installation and temporary power systems.

2.2.3 Main Electrical Building Replacement and Emergency Power Improvements

The existing maintenance building would be demolished and replaced with a new approximately 2,000 square foot main metal framed electrical building (see Figure 2). Demolition would include utility disconnections, hazardous materials abatement as necessary, structure removal, foundation removal, and utility relocation. The new building would be approximately 13 feet high at the roof peak and contain primary switchgear, communications equipment, battery systems, fire suppression systems, heating and cooling equipment, and facility storage. Associated improvements would include foundation installation, utility connections, security features, drainage improvements, and equipment pads. The new building foundation will be approximately 3 feet above grade to account for future sea level rise.

The project would replace existing standby power systems with a centralized backup generation system capable of supporting WWTF operations during utility outages. Improvements would include removal of two 400 kilowatt (kW) and one 1,000 kW existing standby generators and installation of a new standby generator, transformers, electrical equipment, fuel storage systems, exhaust systems, and protective equipment. A new 2.5 megawatt standby diesel generator will also be installed within the footprint of the demolished maintenance building in a separate metal enclosure measuring approximately 45 feet long by 12 feet wide and 22 feet high. The enclosure will also have a 24-inch-diameter exhaust stack extending approximately 6 feet above the roof. The new standby generator will contain approximately 4,000 gallons of fuel (24 hours' worth) and only operate when utility power is lost or during monthly 1-hour testing. Runtime of the generator will be limited to Monterey Bay Air Resource District permit requirements.

2.2.4 Pump, Blower and Control System Improvements

The project would replace and upgrade electrical systems serving pumps and aeration blowers. Existing medium-voltage motors would be replaced with modern equipment and connected to new variable-frequency drives and control systems. New control equipment would improve energy efficiency, operational flexibility, and process reliability. Improvements would occur within existing treatment process areas and would not change the treatment capacity or treatment processes conducted at the WWTF.

3 Regulatory Context

3.1 Federal

3.1.1 Federal Endangered Species Act

The federal Endangered Species Act (FESA) (16 USC 1531 et seq.), as amended, is administered by the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) (aka National Oceanic and Atmospheric Administration Fisheries). This legislation is intended to provide a means to conserve the ecosystems upon which endangered and threatened species depend and provide programs for the conservation of those species, thus preventing extinction of plants and wildlife. As part of this regulatory act, FESA provides for designation of critical habitat, defined in FESA Section 3(5)(A) as specific areas within the geographical range occupied by a species where physical or biological features “essential to the conservation of the species” are found and that “may require special management considerations or protection.” Critical Habitat may also include areas outside the current geographical area occupied by the species that are nonetheless “essential for the conservation of the species.” Under provisions of Section 9(a)(1)(B) of FESA, it is unlawful to “take” any FESA-listed species. “Take” is defined in Section 3(19) of FESA as, harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting, or attempting to engage in any such conduct. Federal regulations found in 50 CFR 17.3 further define the term “harm” to mean any act that actually kills or injures a federally listed species, including significant habitat modification or degradation.

Section 7(a)(2) of FESA directs federal agencies to consult with USFWS for any actions they authorize, fund, or carry out that may jeopardize the continued existence of any listed species or result in the destruction or adverse modification of federally designated critical habitat. Consultation begins when the federal agency submits a written request for initiation to USFWS or NMFS, along with the agency’s biological assessment of its proposed action (if necessary), and USFWS or NMFS accepts that sufficient information has been provided to initiate consultation. If USFWS or NMFS concludes that the action is not likely to adversely affect a listed species, the action may be conducted without further review under FESA. Otherwise, USFWS or NMFS must prepare a written biological opinion describing how the agency’s action will affect the listed species and its critical habitat.

3.1.2 Clean Water Act

The Clean Water Act (CWA) is the major federal legislation governing water quality, providing guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation’s waters. Section 401 of the CWA requires an applicant for a federal license or permit that may result in a discharge of pollutants into waters of the United States to obtain state certification, thereby ensuring that the discharge will comply with provisions of the CWA. The State Water Resources Control Board and Regional Water Quality Control Boards (RWQCBs) administer the 401 certification program in California. Section 402 of the CWA establishes a permitting system for the discharge of any pollutant (except dredged or fill material) into waters of the United States. Section 404 establishes a permit program administered by the U.S. Army Corps of Engineers (USACE) that regulates the discharge of dredged or fill material into waters of the United States, including wetlands. USACE implementing regulations are found in 33 CFR Parts 320 to 332. Guidelines for implementation are referred to as the Section 404(b)(1) Guidelines, which were developed by the U.S. Environmental Protection Agency in conjunction with USACE (40 CFR 230). The guidelines allow the discharge of dredged or fill material into the aquatic ecosystem only if there is no practicable alternative that would have less adverse impacts.

3.1.3 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) regulates or prohibits taking, killing, possession of, or harm to migratory bird species listed in 50 CFR 10.13. The MBTA is an international treaty for the conservation and management of bird species that migrate through more than one country and is enforced in the United States by USFWS. Hunting of specific migratory game birds is permitted under the regulations listed in 50 CFR 20. The MBTA was amended in 1972 to include protection for migratory birds of prey (raptors). In 2017, the Department of the Interior issued Memorandum M-37041 expressing the legal opinion that the MBTA prohibits both intentional and incidental take (take incidental to a lawful activity) of bird species.

3.1.4 Executive Order 11990 – Protection of Wetlands

Executive Order 11990 outlines a national directive to prevent negative impacts on wetlands when feasible alternatives exist. To implement this policy, the U.S. Department of Transportation issued DOT Order 5660.1A in 1978. For federally funded projects, it is required to identify any potential effects on wetlands and evaluate options that would avoid such impacts. If avoidance is not possible, the project must incorporate all reasonable measures to reduce harm, and these efforts must be documented in a dedicated Wetlands Only Practicable Alternative Finding. Another key requirement is to engage the public early in the planning process for projects that may affect wetlands. To support this, the Federal Highway Administration offers technical guidance through Technical Advisory 6640.8A and reviews environmental documentation to ensure regulatory compliance.

3.1.5 Executive Order 13112 – Invasive Species

On February 3, 1999, Executive Order 13112 was signed by President Clinton, directing federal agencies to prevent the introduction and spread of invasive species across the United States. The order defines invasive species as any non-native organism, including seeds, spores, or other reproductive material, that can establish itself in an ecosystem and potentially cause harm to the environment, economy, or human health. In response, the Federal Highway Administration issued guidance on August 10, 1999, requiring the use of California's invasive species list, maintained by the Invasive Species Council of California, to identify invasive plants for consideration in National Environmental Policy Act environmental reviews. Under this order, federal agencies must not approve, fund, or implement actions that could contribute to the spread of invasive species unless they have thoroughly evaluated and applied all feasible strategies to reduce associated risks.

3.2 State

3.2.1 California Environmental Quality Act

CEQA requires identification of a project's potentially significant impacts on biological resources and feasible mitigation measures and alternatives that could avoid or reduce significant impacts. The State CEQA Guidelines (CEQA Guidelines) Section 15380(b)(1) defines endangered animals or plants as species or subspecies whose "survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors" (14 CCR 15000 et seq.). A rare animal or plant is defined in Section 15380(b)(2) as a species that, although not presently threatened with extinction, exists "in such small numbers throughout all or a significant portion of its range and may be considered

‘threatened’ as that term is used in the federal Endangered Species Act.” Additionally, an animal or plant may be presumed to be endangered, rare, or threatened if it meets the criteria for listing, as defined further in CEQA Guidelines Section 15380(c). CEQA also requires identification of a project’s potentially significant impacts on riparian habitats (e.g., wetlands, bays, estuaries, and marshes) and other sensitive natural communities, including habitats occupied by endangered, rare, and threatened species.

3.2.2 California Endangered Species Act

The California Department of Fish and Wildlife (CDFW) administers the California Endangered Species Act (CESA), which prohibits the “take” of plant and animal species designated by the California Fish and Game Commission as endangered or threatened in the State of California. Under CESA Section 86, take is defined as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” CESA Section 2053 stipulates that state agencies may not approve projects that will “jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available consistent with conserving the species or its habitat which would prevent jeopardy.”

CESA defines an endangered species as “a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease.” CESA defines a threatened species as “a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the [California Fish and Game] Commission as rare on or before January 1, 1985, is a threatened species.” A candidate species is defined as “a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the Commission has formally noticed as being under review by the department for addition to either the list of endangered species or the list of threatened species, or a species for which the Commission has published a notice of proposed regulation to add the species to either list.” CESA does not list invertebrate species.

CESA authorizes the taking of threatened, endangered, or candidate species if take is incidental to otherwise lawful activity and if specific criteria are met. These provisions also require CDFW to coordinate consultations with USFWS for actions involving federally listed species that are also state-listed species. In certain circumstances, CESA allows CDFW to adopt a CESA incidental take authorization as satisfactory for CEQA purposes based on finding that the federal permit adequately protects the species and is consistent with state law.

A CESA permit may not authorize the take of “fully protected” species that are protected in other provisions of the California Fish and Game Code (CFGC), discussed further below.

3.2.3 Porter-Cologne Water Quality Control Act

The intent of the Porter-Cologne Water Quality Control Act is to protect water quality and the beneficial uses of water, and it applies to both surface water and groundwater. Under this law, the State Water Resources Control Board develops statewide water quality plans, and the RWQCBs develop basin plans that identify beneficial uses, water quality objectives, and implementation plans. The RWQCBs have the primary responsibility to implement the

provisions of both statewide and basin plans. All waters of the state are regulated under the Porter–Cologne Water Quality Control Act, including isolated waters that are no longer regulated by USACE. Recent changes in state procedures require increased analysis and mitigation. Developments with impact to jurisdictional waters of the state must demonstrate compliance with the goals of the act by developing stormwater pollution prevention plans, standard urban stormwater mitigation plans, and other measures to obtain a CWA Section 401 certification and/or waste discharge requirement.

3.2.4 California Fish and Game Code

Sections 3503 and 3513 – Nesting Bird Protection

Section 3503 of the CFGC prohibits the needless destruction of nests or eggs of native bird species, and Section 3503.5 of the CFGC states that no birds in the orders of Falconiformes or Strigiformes (birds of prey) can be taken, possessed, or destroyed. For the purposes of these state regulations, CDFW currently considers an active nest as one that is under construction or in use and includes existing nests that are being modified. For example, if a hawk is adding to or maintaining an existing stick nest in a transmission tower, then it would be considered active and covered under these CFGC Sections. Section 3513 states that it is unlawful to take or possess any migratory nongame bird as designated in the MBTA.

Section 1602 – Lake and Streambed Alteration Program

Under Sections 1602–1616 of the CFGC, CDFW regulates activities that would substantially divert or obstruct the natural flow of or substantially change or use any material from the bed, channel, or bank of any river, stream, or lake. CDFW also regulates work that would deposit or dispose of debris, water, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. CDFW jurisdiction includes ephemeral, intermittent, and perennial watercourses (including dry washes) and lakes characterized by the presence of (1) definable bed and banks and (2) existing fish or wildlife resources. In practice, CDFW marks its jurisdictional limit at the top of the stream or lake bank or the outer edge of the riparian vegetation, where present, and sometimes extends its jurisdiction to the edge of the 100-year floodplain. Because riparian habitats do not always support wetland hydrology or hydric soils, wetland boundaries, as defined by CWA Section 404, sometimes include only portions of the riparian habitat adjacent to a river, stream, or lake. Therefore, jurisdictional boundaries under 1602–1616 may encompass a greater area than those regulated under CWA Section 404; CDFW does not have jurisdiction over ocean or shoreline resources.

3.2.5 California Coastal Act

The California Coastal Act of 1976 (CCA) is a comprehensive state law designed to protect California’s coastline by balancing coastal development with conservation, public access, and the long-term health of coastal resources. It establishes the California Coastal Commission as a permanent regulatory agency empowered to oversee development within the “coastal zone,” a geographically defined area extending roughly 1,000 yards inland from the mean high tide line and 3 miles offshore. The Coastal Act prioritizes protecting sensitive habitats, maximizing public access to beaches, preserving coastal agriculture, and ensuring that development occurs in an orderly, environmentally responsible way. Overall, it seeks to safeguard the coast as a vital natural resource while allowing necessary, coastal-dependent uses to proceed under strict environmental standards.

Under the CCA (PRC Section 30107.5), an environmentally sensitive habitat area (ESHA) is “any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.” Section 30240 of the Coastal Act includes special protection for ESHAs:

- a. “[ESHAs] shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.”
- b. “Development in areas adjacent to [ESHAs] and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.”

Additionally, Coastal Act Section 30233 states (in relevant part): (a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:

- New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.
- Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.
- In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.
- Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.
- Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.
- Restoration purposes.
- Nature study, aquaculture, or similar resource dependent activities.

3.2.6 California Government Code – Local Exemptions

California Government Code Section 53091 (d) provides that facilities for the production, generation, storage, treatment, and transmission of water supplies, wastewater, or electrical energy by a local agency are exempt from local (i.e., county and city) building ordinances. California Government Code Section 53091 (e) has a similar exemption from local zoning ordinances for water and energy projects but does not reference wastewater projects and therefore this exemption does not apply to the project.

3.3 Local

The project relates to production, generation, storage, treatment, and transmission of wastewater, and therefore these facilities are therefore legally exempt under California Government Code Section 53091 (d) from the City of Santa Cruz building ordinance but are not exempt from the zoning ordinances under California Government Code Section 53091 (e) (see Section 3.2.5 for additional information). It should be noted that facilities that do not directly store, treat, or transmit wastewater do not receive this exemption. For example, the new maintenance building

component of the project would not receive this exemption. Where applicable, the project would be constructed consistent with local policies and ordinances. This section describes local programs, policies, and regulations related to biological resources that may apply to the project.

General Plan 2030

The City's General Plan 2030 governs land use and public facilities, including major utilities. The WWTF is a municipal service facility, and General Plan 2030 applies to all such facilities within the city limits. The following General Plan goals apply to the project (City of Santa Cruz 2019):

- Chapter 10. Natural Resources and Conservation
 - Goal NRC1. Protection of creeks, riparian corridors, and wetlands.
 - NRC1.1. Protect and enhance creek and wetland resources.
 - NRC1.1.1. Establish setbacks, standards, and guidelines for development near creeks and wetlands consistent with the Citywide Creeks and Wetlands Management Plan
 - NRC1.1.2. Maintain creek and riparian habitat.
 - NRC 1.2.1. Evaluate new uses for potential impacts on creek resources and require new development to incorporate appropriate mitigation strategies.
 - NRC 1.3 Maintain and protect creek and wetland resources.
 - NRC1.3.1. Implement conservation of creek, riparian, and wetland resources in accordance with adopted plans.
 - Goal NRC2. Protection of biological resources, habitats, and special-status species
 - NRC2.1. Protect sensitive habitats, wildlife, and plant species.
 - NRC2.1.2. Evaluate development impacts on sensitive biological resources.
 - NRC2.1.3. Implement appropriate mitigation strategies for development projects.
 - NRC2.2. Protect and maintain coastal habitats and biological resources.
 - NRC2.2.1. Evaluate development projects for potential impacts on sensitive biological resources.
 - NRC2.2.2. Protect coastal roosts and rookeries from human disturbance.
 - NRC2.2.4. Minimize impacts from grading, filling, dust, and erosion.
 - NRC2.3. Integrate wildlife movement needs into development review.
 - NRC2.3.1. Restrict barriers that hamper wildlife movement and dispersal corridors.
 - NRC2.4. Protect monarch butterflies.

City-wide Creeks and Wetlands Management Plan

Activities within the city limits that occur along or adjacent to riparian areas are regulated by the City-wide Creeks and Wetlands Management Plan (Creeks Plan). The Creeks Plan was adopted by the City Council to provide a comprehensive approach to managing all creeks and wetlands within the City. The Creeks Plan recommends specific setback requirements based on biological, hydrological, and land use characteristics for various watercourse types within the City. The recommended setbacks within a designated management area include a riparian corridor setback and a development setback area. The Creeks Plan outlines a process for permitting

development adjacent to watercourses. Projects that require a watercourse development permit would be subject to the provisions in Chapter 24.08, Part 21 of the City's Municipal Code (Zoning Regulations) that pertain to issuance of these permits. The Creeks Plan and zoning regulations include specified development standards and management guidelines (City of Santa Cruz 2008). It should be noted that repair, maintenance, or minor alteration of existing public utilities or projects that are reviewed and approved under another authorizing permitting agency (USACE, RWQCB, and/or CDFW) are exempt from City permit requirements.

City of Santa Cruz Operations and Maintenance Habitat Conservation Plan

The City developed the Operations and Maintenance Habitat Conservation Plan (O&M HCP) for improvements or projects with the potential to take federally listed species and other nonlisted special-status species. USFWS approved and has issued an Incidental Take Permit (No. TE89655D-0) for the O&M HCP, which covers six wildlife and four plant species: Ohlone tiger beetle (*Cicindela ohlone*; federally endangered), Mount Hermon June beetle (*Polyphylla barbata*; federally endangered), tidewater goby (*Eucyclogobius newberryi*; federally endangered), Pacific lamprey (*Entosphenus tridentatus*; California Species of Special Concern), California red-legged frog (*Rana draytonii*; federally threatened), northwestern pond turtle (*Actinemys marmorata*; federal candidate threatened and California Species of Special Concern), robust spineflower (*Chorizanthe robusta* var. *robusta*; federally endangered), Santa Cruz tarplant (*Holocarpha macradenia*; federally threatened and state endangered), San Francisco popcorn flower (*Plagiobothrys diffusus*; state endangered), and Ben Lomond spineflower (*Chorizanthe pungens* var. *hartwegiana*; federally endangered). The O&M HCP biological goals and objectives and conservation measures include restoring habitat temporarily disturbed, contributing to protected and managed lands that support covered populations, implementing bypass flows consistent with the City's Anadromous Salmonid HCP (City of Santa Cruz 2023), pursuing other conservation actions that will result in conservation benefits, and implementing general and species-specific impact minimization measures and best management practices. The O&M HCP addresses operation of existing City facilities, including the WWTF (City of Santa Cruz 2021). The O&M HCP was finalized, and the Incidental Take Permit was issued by the USFWS in January 2021; the permit is effective through January 2051 (City of Santa Cruz 2021).

Municipal Code Regulations

Section 24.14.080 of the City's Municipal Code includes provisions to protect wildlife habitat and protected species for areas specified in the City's existing General Plan (Maps EQ-8 and EQ-9). Chapter 9.56 of the City's Municipal Code defines heritage trees, establishes permit requirements for the removal of a heritage tree, and sets forth mitigation requirements as adopted by resolution by the City Council. Heritage trees are defined by size, historical significance, and/or horticultural significance, including but not limited to those that are (1) unusually beautiful or distinctive; (2) old (determined by comparing the age of the tree or shrub in question with other trees or shrubs of its species within the City); (3) a distinctive specimen in size or structure for its species (determined by comparing the tree or shrub to average trees and shrubs of its species within the City); (4) a rare or unusual species for the Santa Cruz area (to be determined by the number of similar trees of the same species within the City); or (5) providing a valuable habitat. Resolution NS-23,710, which was rescinded by Resolution No. NS-28-706 and then reinstated by Resolution No NS-29,092, establishes criteria and standards for the circumstances under which a heritage tree may be removed. City regulations require tree replacement to include replanting three 15-gallon or one 24-inch size specimen, or the current retail value, which shall be determined by the Director of Parks and Recreation. Removal would be permitted if found to be in accordance with the criteria and requirements previously outlined. Approval of a tree removal permit automatically requires replacement trees as set forth above. Removal of heritage trees consistent with City regulations and requirements is not considered a significant impact.

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4 Study Methods

4.1 Literature and Database Review

Special-status species potentially occurring in the BSA were identified through a literature search of the following sources: the CDFW California Natural Diversity Database (CNDDDB) (CDFW 2026a), USFWS Information for Planning and Consultation (IPaC) online planning tool (USFWS 2026a), and California Native Plant Society's Rare Plant Inventory (CNPS 2026a). Searches of these databases were completed for the five U.S. Geological Survey 7.5-minute quadrangles surrounding the BSA: Davenport, Felton, Laurel, Santa Cruz, and Soquel.

For this report, special-status species are defined as (1) plants or wildlife listed, proposed for listing, or candidates for listing as threatened or endangered under FESA; (2) plants or wildlife listed or candidates for listing as threatened or endangered under CESA; (3) wildlife designated as Fully Protected under Sections 3511, 4700, 5050, and 5515 of the CFGC; (4) wildlife designated as a California Species of Special Concern by CDFW; or (5) plants assigned a California Rare Plant Rank (CRPR) of 1A, 1B, 2A, or 2B by the California Native Plant Society. The CRPR system includes six rarity and endangerment ranks for categorizing plant species of concern, 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 2A – Plants presumed to be extinct in California, but more common elsewhere
- CRPR 2B – 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)
- CRPR 4 – Plants of limited distribution (a watch list)

Plants with CRPR 1A, 1B, 2A, or 2B may qualify as endangered, rare, or threatened species within the definition of CEQA Guidelines Section 15380. CDFW recommends that potential impacts to CRPR 1 and 2 species be evaluated in CEQA review documents. In general, CRPR 3 and 4 species do not meet the definition of endangered, rare, or threatened pursuant to CEQA Guidelines Section 15380, but these species may be evaluated on a case-by-case basis.

4.2 Field Survey

Following the literature review, Dudek biologists Tara Johnson-Kelly and Kelsey Higney conducted a reconnaissance-level field survey of the BSA on January 26, 2026 (Table 1), to identify and describe existing biological resources, including vegetation communities, wildlife habitat, aquatic resources (e.g., wetlands), and sensitive resources, such as vegetation communities considered sensitive by CDFW (2026a) and habitat potentially supporting special-status plant and wildlife species. Determinations for the potential of special-status species to occur were based on a review of habitat types, soils, and elevation preferences, as well as the known geographic range of each species and nearby documented occurrences. Species were determined “not expected to occur” when the BSA was clearly outside the known geographic range of the species or did not support suitable habitat. Representative photographs are included in Appendix B, Representative Site Photographs.

Table 1. Field Survey Conditions

Date	Survey Hours	Conditions	Biologists
01/26/2026	10:11 a.m.–11:57 a.m.	55–58 °F; 0% cloud cover; 2–4 mph wind	Tara Johnson-Kelly, Kelsey Higney

All plant species were identified to the lowest taxonomic group possible. Nomenclature for plant species follows the Jepson Manual, Vascular Plants of California, Second Edition (Jepson Flora Project 2026). Wildlife species detected by sight, calls, tracks, scat, or other signs were recorded in a field notebook and/or a digital survey form. Wildlife species not observed but expected to use the BSA were identified based on known habitat preferences and regional distribution.

No formal wetland delineation or focused surveys for special-status animal species were conducted. The site assessment was sufficient to generally describe aquatic features in the BSA potentially subject to regulation by the USACE, Central Coast RWQCB, CDFW, and/or California Coastal Commission (CCC).

5 Environmental Setting

The BSA is approximately 12.70 acres in size and includes all areas to be affected directly or indirectly by the proposed project. The BSA encompasses the preliminary limits of ground disturbance (6.14-acre project footprint) plus a 100-foot survey buffer (6.56 acres).

5.1 Topography, Climate, and Land Use

The BSA is located on the Central Coast of California along the northern edge of Monterey Bay. The BSA sits on a low terrace south of Neary Lagoon and north of Bay Street. Elevation ranges from approximately 3 to 57 feet above mean sea level, with the highest elevations at the southern end of the BSA along La Barranca Park and the lowest elevations at the west end of the BSA near the clarifier tanks. Santa Cruz County experiences a Mediterranean climate with warm, dry summers and cool, wet winters. The average annual maximum temperature is 68.9°F, and the average minimum temperature is 45°F (WRCC 2026). Average annual precipitation is 29.33 inches, most of which falls between October and April (WRCC 2026).

5.2 Hydrology

The BSA is in the Monterey Bay Watershed (Hydrologic Unit Code 10: 1806001503) (USGS 2023). The BSA consists of a low marine terrace adjacent to Neary Lagoon, which empties into Monterey Bay at Cowell Beach. Surface runoff in the BSA flows into storm drains that discharge into Neary Lagoon.

The USFWS National Wetlands Inventory identifies freshwater pond and freshwater forested/shrub wetland in and adjacent to the BSA in Neary Lagoon (USFWS 2026b). According to the Federal Emergency Management Agency, most of the BSA is in an area of high flood risk (Zone A99). Of the BSA's 12.70 acres, 6.89 are within the 100-year floodplain; 0.29 are within the 500-year floodplain; and 5.52 are within an area of minimal flood hazard (FEMA 2026) (Figure 3, Hydrologic Setting).

5.3 Soils

According to the Natural Resources Conservation Service, there are two soil types mapped in the BSA: Elkhorn sandy loam, 2% to 9% slopes; and Watsonville loam, thick surface, 0% to 2% slopes. Both soil types mapped in the BSA are considered hydric (USDA 2026a, 2026b). Soil types within the BSA are summarized in Table 2; visually depicted in Figure 4, Soils; and described below (USDA 2026a):

- **Elkhorn Series:** Elkhorn soils consist of marine terraces of deep, well-drained sandy loam formed from alluvium from mixed rock sources.
- **Watsonville Series:** Watsonville soils consist of marine terraces of somewhat poorly drained loam, clay, and sandy clay loam formed from alluvium.

Table 2. Soils in the Biological Study Area

Soil Type	Hydric Rating	Acreage
133 – Elkhorn sandy loam, 2% to 9% slopes	Yes	0.70
178 – Watsonville loam, thick surface, 0% to 2% slopes	Yes	11.88
185 – Water	No	0.12
Total		12.70

Sources: USDA 2026a, 2026b.

5.4 Vegetation Communities and Land Cover Types

Land cover in the BSA consists of mostly developed and human-altered land cover types and some natural vegetation communities. Two vegetation communities and four land cover types were mapped in the BSA (Table 3). These vegetation communities and land cover types are depicted on Figure 5, Vegetation Communities and Land Cover Types, and described in further detail below.

Table 3. Vegetation Communities and Land Cover Types in the BSA

Vegetation Community or Land Cover Type	Acres
Vegetation Communities	
Arroyo willow thickets	0.18
Coast live oak woodland	1.22
Land Cover Types	
Disturbed habitat	0.93
Open water	0.03
Ornamental plantings	1.35
Urban/Developed	8.99
Total	12.70

Source: CNPS 2026b.

5.4.1 Arroyo Willow Thickets

The arroyo willow thickets shrubland alliance is characterized by arroyo willow (*Salix lasiolepis*) dominant in the low tree/tall shrub canopy. Other co-occurring species may include bigleaf maple (*Acer macrophyllum*), mulefat (*Baccharis salicifolia*), button willow (*Cephalanthus occidentalis*), red-stemmed dogwood (*Cornus sericea*), Pacific wax myrtle (*Morella californica*), California sycamore (*Platanus racemosa*), Fremont cottonwood (*Populus fremontii*), black cottonwood (*Populus trichocarpa*), other willows (*Salix* spp.), and coyote brush (*Baccharis pilularis*). Shrub canopy height is typically less than 10 meters, and emergent trees may be present at low cover (CNPS 2026b). This alliance is considered a sensitive vegetation community on CDFW's California Natural Community List (CDFW 2026b). In the BSA, this vegetation community is dominated by arroyo willow and occurs in the southeast corner of the BSA between the project boundary fence and the Southern Pacific Railroad.

5.4.2 Coast Live Oak Woodland

The coast live oak woodland and forest alliance is characterized by coast live oak (*Quercus agrifolia*) dominant or co-dominant in the upland tree canopy with bigleaf maple, madrone (*Arbutus menziesii*), California black walnut (*Juglans californica*), blue oak (*Quercus douglasii*), Engelmann oak (*Quercus engelmannii*), California black oak (*Quercus kelloggii*), valley oak (*Quercus lobata*), and California bay laurel (*Umbellularia californica*). The savanna-like or open to continuous tree canopy is less than 30 meters in height, with a sparse to intermittent shrub layer and sparse or grassy herbaceous layer (CNPS 2026b). This alliance is not considered a sensitive natural community by CDFW. In the BSA, this community occurs outside the project boundary fence along the trail in Neary Lagoon Wildlife Refuge to the north and east and in a small area in the southwest part of the BSA north of the railroad.

5.4.3 Disturbed Habitat

Disturbed habitat includes areas of land exposed to frequent disturbance by people or the environment to the point that little to no vegetation persists. What little vegetation that does persist in these areas typically consists of non-native, ruderal weedy species. This land cover type occurs along the south side of the BSA between the project boundary fence and La Barranca Park and includes the Pacific Railroad. It is characterized by ruderal weedy species, including stinging nettle (*Urtica dioica* ssp. *dioica*), cheeseweed mallow (*Malva parviflora*), and French broom (*Genista monspessulana*).

5.4.4 Open Water

Open water within the BSA consists of a small, inundated area of Neary Lagoon to the north of the project. The water level within this area fluctuates seasonally based on rainfall.

5.4.5 Ornamental Plantings

The ornamental plantings land cover type consists of a variety of native and non-native plants that were intentionally planted for aesthetic purposes. These consist of native species such as blueblossom (*Ceanothus thyrsiflorus*), Monterey cypress (*Hesperocyparis macrocarpa*), madrone, and common manzanita (*Arctostaphylos manzanita*), as well as non-native species such as oleander (*Nerium oleander*) and tree aeonium (*Aeonium arboreum*). This land cover type was found along the trail in the Neary Lagoon Wildlife Refuge, within La Barranca Park, and within the WWTF next to the building housing the ultraviolet disinfection system.

5.4.6 Urban/Developed

Urban/developed land cover refers to areas that have been constructed on or otherwise physically altered to the point where vegetation is no longer present. Urban or developed areas are characterized by permanent or semipermanent structures, hardscapes, and landscaped areas. Within the BSA, the urban land cover consists of the WWTF footprint and a portion of Bay Street. This land cover primarily supports ruderal or landscaped vegetation.

5.5 Plants and Wildlife

A total of 29 species of native or naturalized plants, 10 native (34%) and 19 non-native (66%), were recorded in the BSA. A complete list of observed plant species is provided as Appendix C, Plant Species Compendium.

Dudek observed 15 wildlife species within the BSA during the field survey: wood duck (*Aix sponsa*), mallard (*Anas platyrhynchos*), Anna's hummingbird (*Calypte anna*), black phoebe (*Sayornis nigricans*), American crow (*Corvus brachyrhynchos*), cedar waxwing (*Bombycilla cedrorum*), American robin (*Turdus migratorius*), Bewick's wren (*Thryomanes bewickii*), yellow-rumped warbler (*Setophaga coronata*), Townsend's warbler (*Setophaga townsendi*), house finch (*Haemorrhous mexicanus*), dark-eyed junco (*Junco hyemalis*), song sparrow (*Melospiza melodia*), spotted towhee (*Pipilo maculatus*), and western monarch (*Danaus plexippus*). Other common species reported in the area include Cooper's hawk (*Astur cooperii*), red-shouldered hawk (*Buteo lineatus*), red-tailed hawk (*Buteo jamaicensis*), American coot (*Fulica americana*), belted kingfisher (*Megaceryle alcyon*), oak titmouse (*Baeolophus inornatus*), northern rough-winged swallow (*Stelgidopteryx serripennis*), lesser goldfinch (*Spinus psaltria*), brown-headed cowbird (*Molothrus ater*), golden-crowned sparrow (*Zonotrichia atricapilla*), and eastern gray squirrel (*Sciurus carolinensis*) (GBIF 2026).

5.6 Special-Status Species

5.6.1 Special-Status Plants

The CNDDDB and the California Native Plant Society Rare Plant Inventory identified 40 special-status plant species as occurring or potentially occurring in the BSA vicinity (Appendix D, Special-Status Plant Species Potential to Occur). Of these, 38 were eliminated from further consideration due to a lack of suitable habitat or edaphic conditions (i.e., alkaline or serpentine soils) or the BSA's location outside a species' known geographic or elevation range. The two remaining species, robust spineflower and Santa Cruz clover (*Trifolium buckwestiorum*), are unlikely to occur within the BSA and are not discussed further.

Although Monterey cypress was recorded in the BSA, these trees do not have special status because they were intentionally planted for ornamental purposes and are not naturally occurring. Additional rationale for potential to occur determinations is provided in Appendix D.

5.6.2 Special-Status Wildlife

The CNDDDB and USFWS IPaC tool identified 47 special-status wildlife species as occurring or potentially occurring in the BSA vicinity. Of these, 29 species were eliminated from consideration due to the absence of suitable habitat within the BSA or the BSA's location outside of their known range (Appendix E, Special-Status Wildlife Species Potential to Occur). Of the remaining 19 species, 14 species—Crotch's bumble bee (*Bombus crotchii*), Ohlone tiger beetle, Santa Cruz black salamander (*Aneides niger*), California giant salamander (*Dicamptodon ensatus*), foothill yellow-legged frog - Central Coast distinct population segment (*Rana boylei* pop. 4), California red-legged frog, tricolored blackbird (*Agelaius tricolor*) (nesting colony), northern harrier (*Circus hudsonius*) (nesting), yellow rail (*Coturnicops noveboracensis*), black swift (*Cypseloides niger*) (nesting), pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), mountain lion - Southern California/Central Coast Evolutionarily Significant Unit (*Puma concolor*), and American badger (*Taxidea taxus*)—are unlikely to occur within the BSA and are

not discussed further. The four remaining species have potential to occur within the BSA based on the presence of suitable habitat and proximity of recorded observations and are discussed below. Additional rationale for potential to occur determinations is provided in Appendix E.

Monarch Butterfly

Monarch butterfly (*Danaus plexippus*) is a candidate for listing as threatened under FESA. In the fall (late November–February), western North American monarchs begin migration from Canada and states west of the Rockies to their overwintering sites in coastal California and Baja California, Mexico, a journey that takes over 2 months and 300 to 1,000 miles to complete. Overwintering sites are typically composed of wind-sheltered groves of blue gum eucalyptus, Monterey pine (*Pinus radiata*), or Monterey cypress near water sources. The groves provide indirect sunlight, moisture, and protection from strong winds and freezing temperatures. In early spring (February–March), monarchs mate at the overwintering sites before dispersing toward the Rockies and Pacific Northwest. In addition to overwintering habitat, the species requires access to habitat that supports a variety of nectar resources and native milkweed (*Asclepias* spp.) as a larval host plant. (89 FR 100662)

Monarch butterfly has potential to occur within the BSA, which is within 0.5 miles of a known overwintering site (Xerces Society 2026) that is also included in Unit 5 (Santa Cruz County) of proposed critical habitat for the species (Lighthouse Field [site no. 3000]; USFWS 2026c). Additionally, there is one recent CNDDDB record of the species within 0.5 miles of the BSA on the east end of Lighthouse Field in the BSA (CDFW 2026a; Occ. No. 105). The BSA contains one large eucalyptus tree that could host overwintering monarchs.

Northwestern Pond Turtle

Northwestern pond turtle is a candidate for listing as threatened under FESA and is a California Species of Special Concern. It occurs in Washington, Oregon, Nevada, and Northern and Central California from the Sierra Nevada and Coast Range south to Monterey and Kern Counties, where it inhabits a wide variety of permanent and semipermanent aquatic habitats, including ponds, lakes, slow-moving streams, wetlands, sloughs, and lagoon systems. The species requires structurally complex aquatic environments with basking sites such as logs or emergent rocks, as well as adjacent upland areas that support suitable nesting and aestivation habitat. Females typically nest from late spring through early summer, depositing eggs in shallow, sun-exposed soils in grasslands, open woodland edges, or sparsely vegetated uplands within several hundred meters of water. Northwestern pond turtle is omnivorous, feeding on aquatic invertebrates, carrion, small fish, frog egg masses, and plant material. Its reliance on both aquatic and terrestrial habitats makes the northwestern pond turtle vulnerable to hydrologic alteration, habitat fragmentation, disturbance of upland nesting areas, and predation by non-native species (e.g., American bullfrog [*Lithobates catesbeianus*]) (USFWS 2023).

Northwestern pond turtle has potential to occur in the BSA, in and adjacent to Neary Lagoon. There are several recent observations of this species within Neary Lagoon (iNaturalist 2026; Kittleson, pers. comm., 2025). Neary Lagoon provides suitable aquatic habitat for the species year-round, whereas the upland habitat surrounding Neary Lagoon provides suitable aestivation and nesting habitat for the species. The open water and live oak woodland habitat along the north end of the BSA may provide suitable aquatic and upland habitat for this species.

White-Tailed Kite

White-tailed kite (*Elanus leucurus*) is a California Fully Protected species, generally occurring in low-elevation dry and humid grassland, wetland, oak woodland, low shrub, or savanna habitats (CDFW 2026a). This species also uses pastures, agricultural areas, fencerows, irrigation ditches (with residual vegetation), and disturbed lands with scattered trees and shrubs. White-tailed kites typically nest and roost in large bushes or trees with dense canopies (often broad-leaved deciduous trees) adjacent to open areas, either as isolated trees or at the edges of forests, woodlands, or riparian areas (CDFW 2026a; Wheeler 2018).

White-tailed kite has potential to occur in the BSA. There are two research-grade iNaturalist observations of this species from 2018 within Neary Lagoon (iNaturalist 2026). This species has potential to nest in the BSA, as there are several suitable coast live oak trees along the boundary of the WWTF. The lagoon also provides suitable foraging habitat in the vicinity of the BSA. There are no documented CNDDDB occurrences within 5 miles of the BSA (CDFW 2026a).

Western Red Bat

Western red bat (*Lasiurus frantzii*) is a California Species of Special Concern. It is a solitary, foliage-roosting species associated with riparian woodlands throughout coastal and inland California. This species roosts in the leafy outer canopy of broad-leaved trees and shrubs, especially mature cottonwoods (*Populus* spp.), California sycamore, walnuts (*Juglans* spp.), willows, and oak riparian woodlands where dense foliage provides cover and thermal protection. Individuals roost by hanging from the undersides of leaves or small twigs. Western red bat forages on nocturnal flying insects (e.g., moths) in and among vegetation in hardwood and conifer woodlands, riparian corridors, mature orchards, and urban forests. Mating occurs in late summer to early fall, and females give birth to two to five pups between early May and late June. Females nurse their young solitarily, where they risk predation by corvids, hawks, and arboreal mammals such as raccoons (*Procyon lotor*) and Virginia opossums (*Didelphis virginiana*) (CCBS 2026).

Western red bat has potential to occur in the BSA. Suitable roosting habitat is present in the trees bordering the project site, and Neary Lagoon provides suitable foraging habitat. There are three research-grade observations of this species within Santa Cruz County: one dead individual found on the campus of the University of California, Santa Cruz, one dead individual found in 2023 in the San Lorenzo River floodplain, and three individuals captured in 2019 near Sierra Azul Open Space Preserve (iNaturalist 2026). There are no documented CNDDDB occurrences within 5 miles of the BSA (CDFW 2026a).

5.7 Sensitive Natural Communities

Sensitive natural communities are vegetation communities that are of limited distribution statewide or within a county or region. A list of sensitive natural communities in California is maintained by CDFW (2026b) based on the rarity of, and potential threats to, these communities in California. Communities with a state rarity ranking of S1 through S3 in CDFW's California Natural Community List (CDFW 2026b) are considered highly imperiled, and project impacts on high-quality occurrences of these communities are typically considered significant under CEQA. Sensitive natural communities often include riparian vegetation along rivers, streams, and lakes. As described in Section 5.4, there is one vegetation community in the BSA that is considered a sensitive natural community by CDFW (2026b): arroyo willow thickets. This vegetation community occurs in the southeast corner of the BSA between the project boundary fence and the Southern Pacific Railroad.

5.8 Aquatic Resources

No jurisdictional delineation was conducted during the January 2026 site visit; however, the survey was sufficient to identify and describe aquatic features that may be subject to the regulatory jurisdiction of USACE, the Central Coast RWQCB, CDFW, and/or the California Coastal Commission (CCC).

The BSA contains a small portion (0.028 acre) of Neary Lagoon, a large freshwater pond supporting emergent and riparian vegetation (i.e., *Schoenoplectus* sp., *Salix* sp.) that outflows to the Pacific Ocean. USACE, RWQCB, CDFW, and CCC would claim jurisdiction over this feature and associated riparian vegetation under their respective statutes: Section 404 (USACE) and 401 (RWQCB) of the federal Clean Water Act, the Porter-Cologne Water Quality Control Act (RWQCB), Section 1602 of the CFGC (CDFW), and Section 30121 of the CCA (CCC).

5.9 Habitat Connectivity

Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for the migration of animals. Habitat linkages are small patches that join larger blocks of habitat and help reduce the adverse effects of habitat fragmentation; they may be continuous habitat or discrete habitat islands that function as stepping stones for wildlife dispersal. Because many wildlife species have species-specific habitat requirements for survival and dispersal, corridors may also be species specific. At a minimum, corridors promote local colonization or recolonization of distinct habitat patches and potentially increase genetic variability within and between populations. In addition, increased exposure to an inhospitable urban matrix due to reductions in connectivity can increase general mortality. All of these factors can contribute significantly to local species extinctions. Thus, corridors help species populations, distributed in and among habitat patches, to persist over time.

The BSA is mostly developed, enclosed in concrete retaining walls or chain-link security fencing, and subject to frequent disturbance from daily WWTF operations. The BSA itself does not provide habitat connectivity, but it is adjacent to Neary Lagoon. Neary Lagoon is connected to Laurel Creek, which may facilitate small movements of local, urban-adapted wildlife during their daily foraging activities through the surrounding suburban developments of westside Santa Cruz. The BSA does not function as a regional wildlife corridor or linkage.

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6 Impacts and Mitigation

This section identifies potential project impacts on biological resources and, where appropriate, recommends measures to avoid, minimize, and/or mitigate impacts to less than significant under CEQA. The following impact analysis follows the Environmental Checklist (Appendix G) of the CEQA Guidelines; the full text of each of the biological resources questions is provided below each resource topic.

6.1 Special-Status Species

Would the project 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 Game or U.S. Fish and Wildlife Service?

6.1.1 White-Tailed Kite and Nesting Migratory Birds

Project Impacts

If conducted during the nesting season (February 1 to August 31), project activities could impact nesting white-tailed kites or other nesting birds, if present in or adjacent to the project footprint. Tree trimming could result in direct impacts by destroying eggs or killing nestlings in active nests. Increased human activity and construction-generated noise and vibration near active nests could cause adults to abandon eggs or recently hatched young if they perceive such disturbances as a threat. Any construction activity that would result in destruction of active bird nests or disturbance of nesting activity to the extent that it causes nest abandonment would violate the federal MBTA and Sections 1503 and 3513 of the CFGC. The loss of white-tailed kite nests would have a substantial adverse effect on the local population because it would further contribute to population declines for this species. This impact would be **potentially significant**.

Avoidance and Minimization Efforts

The project will implement the following measures to reduce or avoid impacts to nesting white-tailed kites and other native birds.

- Prior to any construction activities scheduled during the bird nesting season (February 1 to August 31), a qualified wildlife biologist with demonstrated nest-searching experience will conduct pre-construction surveys for nesting birds, including white-tailed kite and other raptors. The pre-construction survey will occur no more than 7 days prior to the onset of ground-disturbing activities (including clearing, grubbing, and staging).
- If active nests are found during the survey, the biologist will establish a no-disturbance buffer around the nest and mark the buffer perimeter with high-visibility fencing, flagging, or pin flags. The size of the buffer will be based on the species' sensitivity to disturbance and planned work activities in the vicinity; typical buffer sizes are 250 feet for raptors and 50 feet for passerines.
- The no-disturbance buffer will remain in effect until the nest is no longer active. If a lapse in project-related activities of 15 days or longer occurs, another pre-construction survey will be conducted.

Implementation of the above measures would reduce any potentially significant impacts on white-tailed kite and other native birds to **less than significant**.

6.1.2 Roosting Bats

Project Impacts

The BSA provides suitable foraging and roosting habitat for foliage-roosting bat species, including western red bat. If project activities require the trimming of trees during peak activity timeframes when young or overwintering bats may be present (generally March through April and August through October), such activities could directly impact active bat roosts. The loss of roost sites for western red bat would be a substantial adverse effect because it could reduce survival and reproduction, leading to further population declines. This impact would be **potentially significant**.

Avoidance and Minimization Efforts

The project will implement the following measures to reduce or avoid impacts on foliage-roosting bats.

- Within 2 weeks prior to tree trimming, a qualified biologist will examine subject trees for suitable bat roosting habitat. High-quality habitat features (e.g., large tree cavities, basal hollows, loose or peeling bark, larger snags) will be identified, and the area around these features searched for bats and bat sign (e.g., guano, culled insect parts, staining). Riparian woodland and stands of mature broadleaf trees will be considered potential habitat for solitary foliage-roosting bat species.
- If bat sign is detected, biologists will conduct an evening visual emergence survey of the source habitat feature, from a half hour before sunset to 1–2 hours after sunset for a minimum of 2 nights within the season that construction would be taking place. Night-vision goggles and/or full-spectrum acoustic detectors will be used during emergence surveys to assist in species identification. All emergence surveys will be conducted during favorable weather conditions (calm nights with temperatures conducive to bat activity and no precipitation predicted).
- If a potentially active bat roost is identified within a tree proposed for trimming, passive monitoring with full-spectrum bat detectors will be used to assist in determining species present. A minimum of 4 nights of acoustic monitoring surveys will be conducted within the season that construction would be taking place. If site security allows, detectors should be set to record bat calls for the duration of each night. To the extent possible, all monitoring will be conducted during favorable weather conditions (calm nights with temperatures conducive to bat activity and no precipitation predicted). The biologists will analyze the bat call data using appropriate software and prepare a report that will be submitted to the City and CDFW.
- Additional avoidance and minimization measures may be necessary if it is determined that bats are using the trees as roost sites or if sensitive bat species are detected during acoustic monitoring. Appropriate measures will be determined in coordination with CDFW and may include any combination of the measures listed below.
 - If a maternity roost is located, whether solitary or colonial, that roost will remain undisturbed with a buffer, as determined by a qualified biologist, until September 15 or until the biologist has determined that the roost is no longer active.
 - If a non-maternity roost in a tree is found, every effort should be made to avoid the roost, as methods to evict bats from trees are largely untested.

- If a non-maternity roost is found within trees that cannot be avoided, eviction will be attempted using procedures designed, in consultation with CDFW, to reduce the likelihood of mortality of evicted bats. In all cases, the following stipulations will be observed.
 - Eviction will not occur before September 15 and will match the timeframe for tree removal approved by USFWS and CDFW for nesting birds and other sensitive wildlife.
 - Qualified biologists will carry out or oversee the eviction tasks and will monitor the tree trimming/removal.
 - Eviction will take place late in the day or in the evening to reduce the likelihood of evicted bats falling prey to diurnal predators.
 - Eviction will take place during weather and temperature conditions conducive to bat activity.
- Non-injurious harassment at the roost site, such as ultrasound deterrents or other sensory irritants, may be used to encourage bats to leave on their own.
- Prior to tree trimming and after other eviction efforts have been attempted, any confirmed roost site will be gently shaken or repeatedly struck with a heavy implement such as a sledge hammer or an ax; several minutes should pass before trimming limbs to allow bats time to arouse and leave the roost. The biologists will search downed vegetation for dead and injured bats. The presence of dead or injured bats will be reported to CDFW. Injured bats will be transported to the nearest CDFW-permitted wildlife rehabilitation facility.

Implementation of the above measures would reduce any potentially significant impacts on western red bat and other native roosting bats to **less than significant**.

6.1.3 Monarch Butterfly

Impact Analysis

The BSA contains one large eucalyptus tree suitable for overwintering monarchs and is within 0.5 miles of a core monarch clustering area near the northeast corner of Lighthouse Field State Beach (CDFW 2026b: Occ. No. 105). The trimming of this tree is not likely to adversely affect monarch overwintering habitat, as the known overwintering grove at Lighthouse Field will not be affected, and monarchs have not been observed overwintering in this tree in the past. No signs of native milkweed or substantial patches of nectar plants were observed within the BSA during the field survey, so potential nectar sources for overwintering monarchs will not be impacted by the project. Given the project's distance from core monarch overwintering habitat at Lighthouse Field and lack of impacts to nectar sources, significant impacts to overwintering monarch habitat is unlikely. However, there is potential for overwintering monarchs to roost in the eucalyptus tree between October and March, and individual monarchs could be impacted through direct injury or mortality from tree trimming, if present. These impacts would be **potentially significant** because the loss of individual monarch butterflies from the population wintering in Santa Cruz County would further contribute to population declines of this species.

Avoidance and Minimization Measures

The project will implement the following measures to reduce impacts to overwintering monarchs.

- Any trimming of the eucalyptus tree will occur outside of the monarch overwintering period (October through March), to the extent feasible.
- If trimming must occur between October and March, a qualified biologist will survey the tree no earlier than 1 week prior to tree removal to determine if any monarch butterflies are present. If monarchs are present, the qualified biologist will establish a no-disturbance buffer around the tree and mark the buffer perimeter with high-visibility fencing, flagging, or pin flags. The size of the buffer will be based on the height of the occupied tree and size of the overwintering group.
- The no-disturbance buffer will remain in effect until the monarchs have dispersed for migration and the tree is no longer in use for overwintering.

Implementation of the above measure would reduce any potentially significant impacts to **less than significant**.

6.1.4 Northwestern Pond Turtle

Impact Analysis

The BSA is adjacent to Neary Lagoon, which supports a known population of northwestern pond turtles (iNaturalist 2026; Kittleson, pers. comm., 2025). Neary Lagoon provides suitable aquatic habitat for pond turtles, and the surrounding live oak woodland habitat provides suitable upland aestivation and nesting habitat. However, project construction would not impact aquatic habitat in Neary Lagoon or undeveloped upland habitat adjacent to Neary Lagoon. The project will take place within the already developed WWTF, which is surrounded by a retaining wall or chain-link security fencing that impedes turtle access to the site. Therefore, project construction is not likely to adversely affect northwestern pond turtle aquatic or upland habitat and would have **no impact** on northwestern pond turtle.

6.2 Sensitive Natural Communities

Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

The project would not likely impact any sensitive natural communities if construction remains within the WWTF's existing footprint. The project as it is currently designed would have **no impact** on sensitive natural communities.

If during construction it becomes apparent that the 21 kV conduit connecting Substation 4A to the main switchgear must be either trenched or placed aboveground along the southern perimeter fence in the arroyo willow thicket, such activities could directly impact arroyo willow habitat through grubbing, grading, trenching, and staging. If this placement must be pursued, then the project could have a **potentially significant impact** on sensitive natural communities.

Avoidance and Minimization Efforts

The project will implement the following measures to avoid or reduce impacts to sensitive natural communities:

- All mature live trees within the arroyo willow thicket will be completely avoided during vegetation removal activities.

- Prior to ground disturbance, a qualified biologist or restoration specialist will prepare a restoration and revegetation plan to address temporary impacts on the arroyo willow thicket. The restoration and revegetation plan would outline, at a minimum:
 - Procedures for documenting pre-construction conditions for restoration purposes
 - Sources of plant materials and methods of propagation
 - Specification of parameters for maintenance and monitoring of the restored arroyo willow thicket, including weed control measures, frequency of field checks, and monitoring reports
 - Specification of success criteria for re-plantings
 - Specification of the remedial measures to be taken if success criteria are not met
 - Maintenance, monitoring, and reporting schedules, including an annual report due to the City by January 31st of the following year
- After construction is complete, temporarily disturbed areas will be revegetated with arroyo willow using appropriate and well-documented techniques (e.g., live-staking of dormant branches). Branches will be obtained from nearby mature willows.

6.3 Aquatic Resources

Would the project 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?

One jurisdictional aquatic resource, Neary Lagoon, was observed in the BSA but is outside the project boundary. Project activities will occur within the developed footprint of the WWTF, and no work is expected to occur in Neary Lagoon. Therefore, the project will have **no impact** on aquatic resources.

6.4 Wildlife Nursery Sites and Habitat Connectivity

Would the project 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?

The project will not cause direct impacts to habitat connectivity because the project will occur within an already developed facility that does not currently provide habitat connectivity. Neary Lagoon Wildlife Refuge provides habitat connectivity for wildlife in the vicinity and will be unaffected by the project. In summary, the project would have **no impact** on fish or wildlife movement or established wildlife corridors.

The BSA contains many trees that could provide habitat for wildlife nursery sites (e.g., bird nests and bat maternity roosts). Tree trimming during the bird nesting season and bat maternity season could result in nest failure and offspring mortality, which would have a substantial adverse effect on local populations because it would further contribute to population declines. This impact would be potentially significant. Implementation of the measures described in Sections 6.1.1 and 6.1.2 would reduce any potentially significant impacts on bird nests and maternity bat roots to **less than significant**.

6.5 Local Policies or Ordinances

Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The project proposes to potentially place a section of the 21 kV conduit within the arroyo willow thicket on the east side of the Maintenance Building. Removal of trees within the arroyo willow thicket has potential to remove heritage trees as defined under Chapter 9.56 of the City's Municipal Code (see Section 3.3, Municipal Code Regulations). The avoidance and minimization measures for sensitive natural communities (see Section 6.2) require that all mature trees within the arroyo willow thicket be completely avoided. With the implementation of these measures, the project would not conflict with local policies or ordinances and there would be **no impact**.

6.6 Habitat Conservation Plans

Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The City's O&M HCP applies broadly to the operation, maintenance, and rehabilitation of the City's water system and municipal facilities. The WWTF is a municipal facility, and its routine operations and maintenance fall under the City's O&M HCP Incidental Take Permit. The project has been designed by the City to be consistent with the conservation strategies and objectives of the O&M HCP. Therefore, the project would not conflict with provisions of the O&M HCP. There are no other approved local, regional, or state habitat conservation plans in the vicinity. Therefore, the project would have **no impact** on any such plans.

7 Conclusions and Regulatory Determinations

7.1 Federal Endangered Species Act

Two species proposed for listing under FESA could potentially occur in the BSA. A preliminary effect determination for these species is provided in Table 4, which indicates that there is no potential for incidental take of these two species and therefore a FESA Section 10 incidental take permit will not be required.

Table 4. Species Listed or Proposed for Listing under the Federal Endangered Species Act in the Biological Study Area

Species	Status	Determination	Rationale
Monarch <i>Danaus plexippus</i> (overwintering population)	Proposed Threatened	May affect, not likely to adversely affect	The project is located within 0.5 miles of Critical Habitat Unit 5 (Lighthouse Field) and may need to trim a large eucalyptus tree but will not impact any trees identified as a core monarch clustering area. The project would not impact any nectar sources and mitigation measures would ensure no significant impact would occur to individual monarchs.
Northwestern pond turtle <i>Actinemys marmorata</i>	Proposed Threatened	No effect	The project is located adjacent to Neary Lagoon, which provides suitable aquatic habitat for the species. The live oak woodland areas of the Biological Study Area may provide suitable upland refugia or nesting habitat for the species. However, the project site itself is surrounded by retaining walls and chain-link fencing that serve as a barrier to the species entering the wastewater treatment facility grounds. The project will not impact any upland habitat adjacent to Neary Lagoon and will not impact aquatic habitat in Neary Lagoon.

7.2 California Endangered Species Act

No state-listed species occur in the BSA, and no take of state-listed species is anticipated during project implementation. Therefore, an incidental take permit will not be required for the project.

7.3 Essential Fish Habitat

The BSA is outside essential fish habitat; therefore, consultation with NMFS is not warranted.

7.4 Wetlands and Other Waters

No impacts to wetlands and waters are anticipated during project implementation and therefore no federal or state wetlands permitting is required.

7.5 Other

All native nesting birds are protected by the MBTA (16 USC 703–711). Native nesting bird species are also protected by CFGC Sections 3503, 3503.5, 3513, and 3800. These laws regulate the take, possession, or destruction of the nest or eggs of any migratory bird or bird of prey. Avoidance and minimization measures for nesting birds are described in Section 6.1.1 and will be implemented to protect nesting birds and comply with nesting bird protections under the MBTA and CFGC.

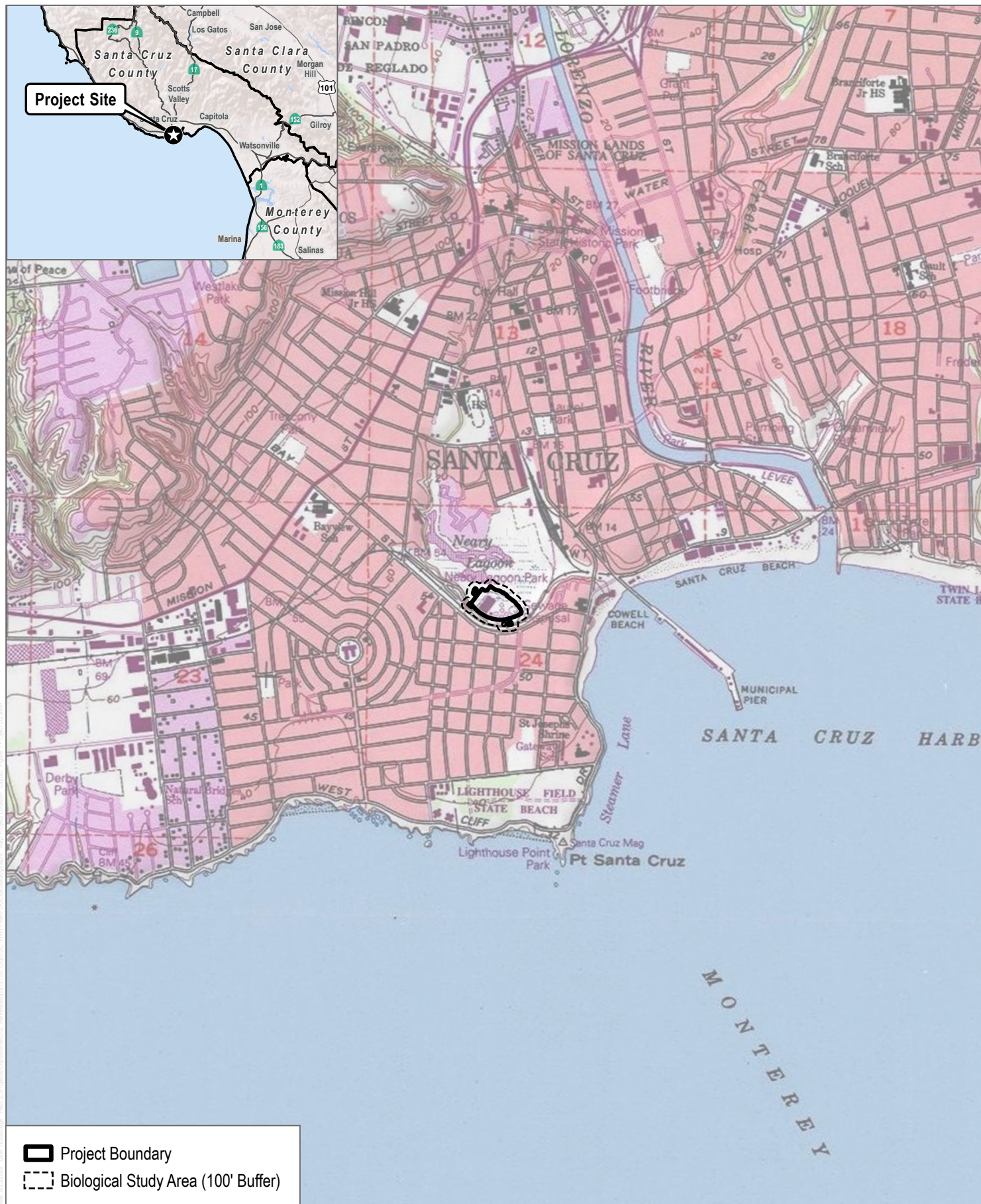
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Appendix A

Figures



SOURCE: USGS 7.5-minute Series Santa Cruz Quadrangle

FIGURE 1

Project Location



SOURCE: Esri Aerial Basemap, OpenStreetMap

DUDEK



0 75 150
Feet

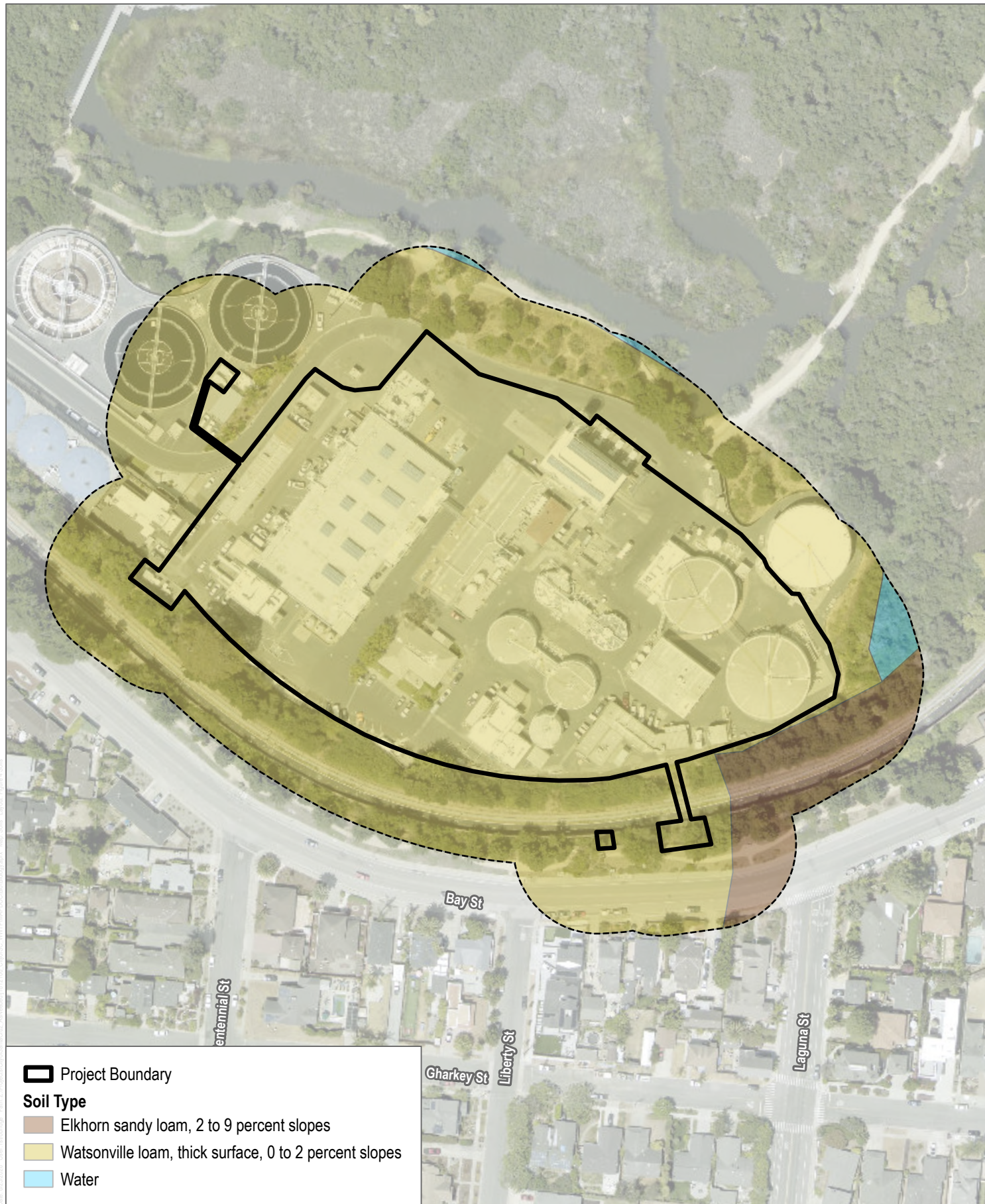
FIGURE 2

Biological Study Area

City of Santa Cruz Wastewater Treatment Plant Project

DUDEK  0150
 Feet

City of Santa Cruz Wastewater Treatment Plant Project



SOURCE: Esri Aerial Basemap, OpenStreetMap, USDA SSURGO

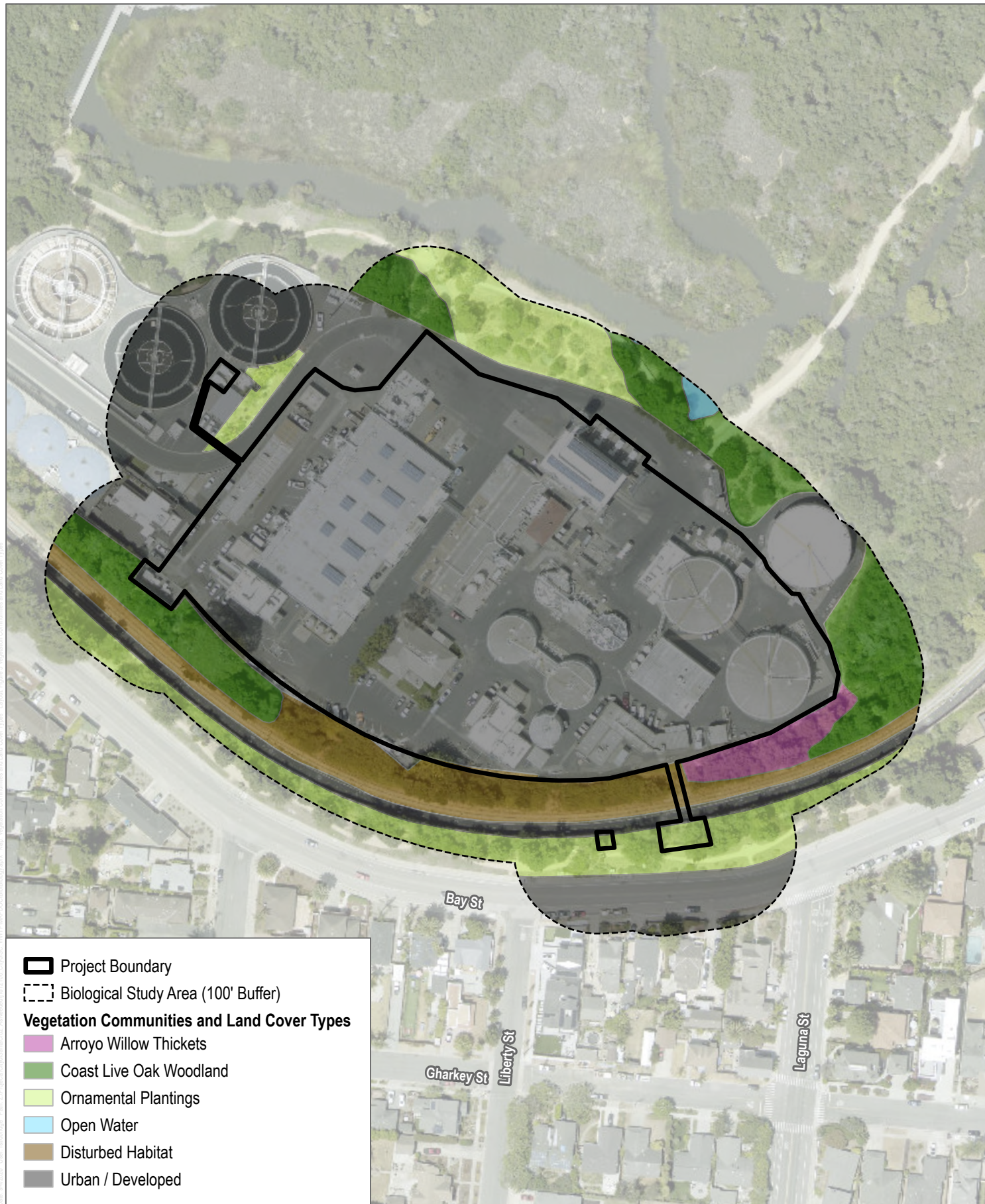
DUDEK



0 75 150 Feet

FIGURE 4
Soils

City of Santa Cruz Wastewater Treatment Plant Project



SOURCE: Esri Aerial Basemap, OpenStreetMap

Appendix B

Representative Site Photographs

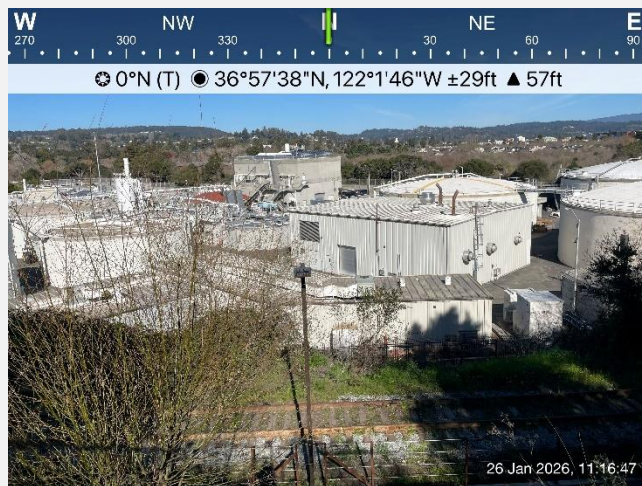


Photo 1. Overview of the Santa Cruz Wastewater Treatment Facility (WWTF).



Photo 2. Planned path for the 21-kilovolt (kV) electrical cable, from the eucalyptus tree through the pavement towards the camera.

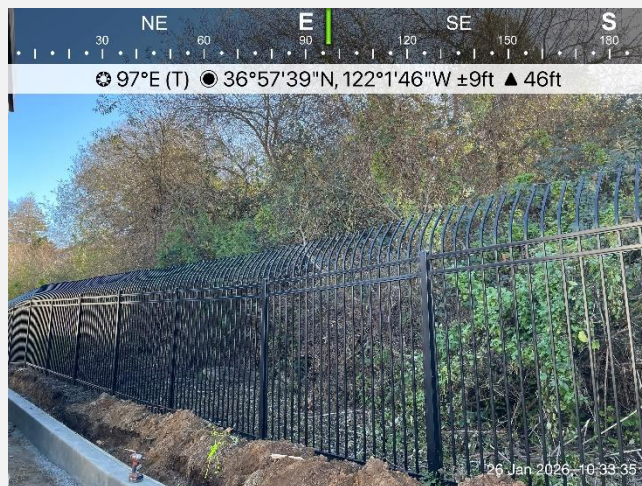


Photo 3. Arroyo willow thicket habitat in the southeastern part of the Biological Study Area (BSA). The new 21 kV cable may be placed beyond the black fence as an alternative.



Photo 4. Ornamental plantings land cover in the northwestern part of the BSA.



Photo 5. Disturbed habitat outside the WWTF perimeter fence in the southwest part of the BSA. The large eucalyptus tree is visible.



Photo 6. The maintenance building slated for demolition and the future location of the new main switchgear.



Photo 7. The proposed path of the new 21 kV cable (through the pavement headed to the left of digester 4).



Photo 8. An alternative path for the new 21 kV cable (through the pavement straight ahead and around digesters 4 and 5 to the left).



Photo 9. The building locker and garage, which will be modified to accommodate staff displaced by demolition of the maintenance building.



Photo 10. Existing Pacific Gas and Electric 21 kV service box within La Barranca Park and adjacent to Bay Street to be replaced during construction.

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Appendix C

Plant Species Compendium

Plant Species

Eudicots

APIACEAE—CARROT FAMILY

- * *Conium maculatum*—poison hemlock

APOCYNACEAE—DOGBANE FAMILY

- * *Nerium oleander*—oleander

ARALIACEAE—GINSENG FAMILY

- * *Hedera helix*—English ivy

ASTERACEAE—SUNFLOWER FAMILY

- * *Cirsium vulgare*—bull thistle
- Pseudognaphalium stramineum*—cottonbatting plant

BRASSICACEAE—MUSTARD FAMILY

- * *Cardamine hirsuta*—hairy bittercress
- * *Raphanus raphanistrum*—wild radish

CAPRIFOLIACEAE—HONEYSUCKLE FAMILY

- * *Lonicera japonica*—Japanese honeysuckle

CRASSULACEAE—STONECROP FAMILY

- * *Aeonium arboreum*—tree aeonium

CUCURBITACEAE—GOURD FAMILY

- Marah fabacea*—California man-root

ERICACEAE—HEATH FAMILY

- Arbutus menziesii*—madrone
- Arctostaphylos manzanita*—common manzanita

FABACEAE—LEGUME FAMILY

- * *Acacia melanoxylon*—blackwood
- * *Genista monspessulana*—French broom
- * *Vicia sativa*—garden vetch

FAGACEAE—OAK FAMILY

- Quercus agrifolia*—coast live oak

GERANIACEAE—GERANIUM FAMILY

- * *Geranium molle*—dovefoot geranium

MALVACEAE—MALLOW FAMILY

- * *Malva parviflora*—cheeseweed mallow

MYRTACEAE—MYRTLE FAMILY

- * *Eucalyptus globulus*—Tasmanian bluegum

OXALIDACEAE—OXALIS FAMILY

- * *Oxalis pes-caprae*—Bermuda buttercup

PLANTAGINACEAE—PLANTAIN FAMILY

- * *Plantago lanceolata*—narrowleaf plantain

ROSACEAE—ROSE FAMILY

- * *Rhaphiolepis indica*—Indian hawthorn

RUBIACEAE—MADDER FAMILY

Galium aparine—stickywilly

TROPAEOLACEAE—NASTURTIUM FAMILY

- * *Tropaeolum majus*—nasturtium

URTICACEAE—NETTLE FAMILY

- * *Urtica dioica* ssp. *dioica*—stinging nettle

Ferns and Allies

EQUISETACEAE—HORSETAIL FAMILY

Equisetum arvense—field horsetail

Gymnosperms and Gnetophytes

CUPRESSACEAE—CYPRESS FAMILY

Calocedrus decurrens—incense cedar

Hesperocyparis macrocarpa—Monterey cypress

Sequoia sempervirens—redwood

- * signifies introduced (non-native) species

Appendix D

Plant Species Potential to Occur

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
<i>Agrostis blasdalei</i>	Blasdale's bent grass	None/None/1B.2	Coastal bluff scrub, Coastal dunes, Coastal prairie/perennial rhizomatous herb/May–July/0–490	Not expected to occur. Suitable habitat is absent from the BSA.
<i>Amsinckia lunaris</i>	bent-flowered fiddleneck	None/None/1B.2	Cismontane woodland, Coastal bluff scrub, Valley and foothill grassland/annual herb/Mar–June/10–1,640	Not expected to occur. There are no CNDDDB or Calflora records of this species within 5 miles of the BSA.
<i>Aphyllon robbinsii</i>	Robbins' broomrape	None/None/1B.1	Coastal bluff scrub; Rocky, Sandy/annual herb (achlorophyllous)/Apr–July/0–330	Not expected to occur. Suitable habitat is absent from the BSA.
<i>Arctostaphylos andersonii</i>	Anderson's manzanita	None/None/1B.2	Broadleaved upland forest, Chaparral, North Coast coniferous forest; Edges, Openings/perennial evergreen shrub/Nov–May/195–2,495	Not expected to occur. Suitable habitat is absent from the BSA, and the BSA is outside the species' elevation range.
<i>Arctostaphylos glutinosa</i>	Schreiber's manzanita	None/None/1B.2	Chaparral, Closed-cone coniferous forest/perennial evergreen shrub/Mar–Apr(Nov)/560–2,245	Not expected to occur. The BSA is outside the species' known elevation range and suitable habitat is absent.
<i>Arctostaphylos ohloneana</i>	Ohlone manzanita	None/None/1B.1	Closed-cone coniferous forest, Coastal scrub/evergreen shrub/Feb–Mar/1,475–1,740	Not expected to occur. The BSA is outside the species' known elevation range and suitable habitat is absent.
<i>Arctostaphylos silvicola</i>	Bonny Doon manzanita	None/None/1B.2	Chaparral, Closed-cone coniferous forest, Lower montane coniferous forest/perennial evergreen shrub/Jan–Mar/395–1,970	Not expected to occur. The BSA is outside the species' known elevation range and suitable habitat is absent.
<i>Arenaria paludicola</i>	marsh sandwort	FE/SE/1B.1	Marshes and swamps (brackish, freshwater); Openings, Sandy/perennial stoloniferous herb/May–Aug/10–560	Not expected to occur. Suitable habitat is absent from the BSA.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
<i>Astragalus agnicidus</i>	Humboldt County milk-vetch	None/SE/1B.1	Broadleaved upland forest, North Coast coniferous forest; Disturbed areas, Openings, Roadsides (sometimes)/ perennial herb/(Mar)Apr–Sep/ 395–2,625	Not expected to occur. The BSA is outside the species' known elevation range and suitable habitat is absent.
<i>Calyptridium parryi</i> var. <i>hesseae</i>	Santa Cruz Mountains pussypaws	None/None/1B.1	Chaparral, Cismontane woodland; Gravelly (sometimes), Openings, Sandy (sometimes)/annual herb/May–Aug/ 1,000–5,020	Not expected to occur. The site is outside the species' known elevation range.
<i>Carex comosa</i>	bristly sedge	None/None/2B.1	Coastal prairie, Marshes and swamps (lake margins), Valley and foothill grassland/perennial rhizomatous herb/May–Sep/0–2,050	Not expected to occur. Suitable habitat is absent from the BSA.
<i>Carex saliniformis</i>	deceiving sedge	None/None/1B.2	Coastal prairie, Coastal scrub, Marshes and swamps (coastal salt), Meadows and seeps; Mesic/perennial rhizomatous herb/(May)June(July)/10–755	Not expected to occur. Suitable habitat is absent from the BSA.
<i>Chorizanthe pungens</i> var. <i>hartwegiana</i>	Ben Lomond spineflower	FE/None/1B.1	Lower montane coniferous forest (maritime ponderosa pine sandhills)/ annual herb/Apr–July/295–2,000	Not expected to occur. The BSA is outside the species' known elevation range and suitable habitat is absent.
<i>Chorizanthe pungens</i> var. <i>pungens</i>	Monterey spineflower	FT/None/1B.2	Chaparral (maritime), Cismontane woodland, Coastal dunes, Coastal scrub, Valley and foothill grassland; Sandy/ annual herb/Apr–June (July–Aug)/ 10–1,475	Not expected to occur. There are no CNDDDB records of this species within 5 miles of the BSA.
<i>Chorizanthe robusta</i> var. <i>hartwegii</i>	Scotts Valley spineflower	FE/None/1B.1	Meadows and seeps (sandy), Valley and foothill grassland (mudstone, Purisima outcrops)/annual herb/Apr–July/ 755–805	Not expected to occur. The BSA is outside the species' known elevation range and suitable habitat is absent.
<i>Chorizanthe robusta</i> var. <i>robusta</i>	robust spineflower	FE/None/1B.1	Chaparral (maritime), Cismontane woodland (openings), Coastal dunes, Coastal scrub; Gravelly (sometimes),	Unlikely to occur. There are two recent ($\leq$ 20 years) records within 5 miles of the BSA in Pogonip Open Space (Calflora 2026). However, the live oak woodland

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
			Sandy (sometimes)/annual herb/ Apr-Sep/10-985	areas of the BSA are regularly mowed as part of Neary Lagoon Park. Additionally, the species has not been recorded within Neary Lagoon Park.
<i>Collinsia multicolor</i>	San Francisco collinsia	None/None/1B.2	Closed-cone coniferous forest, Coastal scrub; Serpentine (sometimes)/annual herb/(Feb)Mar-May/100-900	Not expected to occur. Suitable habitat is absent from the BSA.
<i>Dacryophyllum falcifolium</i>	tear drop moss	None/None/1B.3	North Coast coniferous forest; Carbonate/moss/N.A./165-900	Not expected to occur. The BSA is outside the species' known elevation range and suitable habitat is absent.
<i>Eastwoodiella californica</i>	swamp harebell	None/None/1B.2	Bogs and fens, Closed-cone coniferous forest, Coastal prairie, Marshes and swamps (freshwater), Meadows and seeps, North Coast coniferous forest; Mesic/perennial rhizomatous herb/June-Oct/5-1,330	Not expected to occur. Suitable habitat is absent from the BSA.
<i>Eriogonum nudum</i> var. <i>decurrans</i>	Ben Lomond buckwheat	None/None/1B.1	Chaparral, Cismontane woodland, Lower montane coniferous forest (maritime ponderosa pine sandhills); Sandy/perennial herb/June-Oct/165-2,625	Not expected to occur. The BSA is outside the species' known elevation range.
<i>Erysimum teretifolium</i>	Santa Cruz wallflower	FE/SE/1B.1	Chaparral, Lower montane coniferous forest/perennial herb/Mar-July/395-2,000	Not expected to occur. The BSA is outside the species' known elevation range and suitable habitat is absent.
<i>Fissidens pauperculus</i>	minute pocket moss	None/None/1B.2	North Coast coniferous forest (damp coastal soil)/moss/N.A./35-3,360	Not expected to occur. Suitable habitat is absent from the BSA.
<i>Hesperocyparis abramsiana</i> var. <i>abramsiana</i>	Santa Cruz cypress	FT/SE/1B.2	Chaparral, Closed-cone coniferous forest, Lower montane coniferous forest; Granitic (sometimes), Sandstone (sometimes)/perennial evergreen tree/N.A./920-2,625	Not expected to occur. The BSA is outside the species' known elevation range and suitable habitat is absent.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
<i>Hoita strobilina</i>	Loma Prieta hoita	None/None/1B.1	Chaparral, Cismontane woodland, Riparian woodland; Mesic, Serpentine (usually)/perennial herb/ May–July(Aug–Oct)/100–2,820	Not expected to occur. The BSA is outside the species' known elevation range.
<i>Holocarpha macradenia</i>	Santa Cruz tarplant	FT/SE/1B.1	Coastal prairie, Coastal scrub, Valley and foothill grassland; Clay (often), Sandy/annual herb/June–Oct/35–720	Not expected to occur. Suitable habitat is absent from the BSA.
<i>Horkelia cuneata</i> var. <i>sericea</i>	Kellogg's horkelia	None/None/1B.1	Chaparral (maritime), Closed-cone coniferous forest, Coastal dunes, Coastal scrub; Gravelly (sometimes), Openings, Sandy (sometimes)/perennial herb/ Apr–Sep/35–655	Not expected to occur. Suitable habitat is absent from the BSA.
<i>Horkelia marinensis</i>	Point Reyes horkelia	None/None/1B.2	Coastal dunes, Coastal prairie, Coastal scrub; Sandy/perennial herb/May–Sep/ 15–2,475	Not expected to occur. Suitable habitat is absent from the BSA.
<i>Lasthenia californica</i> ssp. <i>macrantha</i>	perennial goldfields	None/None/1B.2	Coastal bluff scrub, Coastal dunes, Coastal scrub/perennial herb/Jan–Nov/ 15–1,705	Not expected to occur. Suitable habitat is absent from the BSA.
<i>Malacothamnus arcuatus</i> var. <i>arcuatus</i>	arcuate bushmallow	None/None/1B.2	Chaparral, Cismontane woodland/ perennial deciduous shrub/Apr–Sep/ 50–1,165	Not expected to occur. Suitable habitat is absent from the BSA.
<i>Microseris paludosa</i>	marsh microseris	None/None/1B.2	Cismontane woodland, Closed-cone coniferous forest, Coastal scrub, Valley and foothill grassland/perennial herb/Apr–June(July)/15–1,165	Not expected to occur. There are no CNDDDB records of this species within 5 miles of the BSA.
<i>Monardella sinuata</i> ssp. <i>nigrescens</i>	northern curly-leaved monardella	None/None/1B.2	Chaparral (SCR Co.), Coastal dunes, Coastal scrub, Lower montane coniferous forest (SCR Co., ponderosa pine sandhills); Sandy/annual herb/ (Apr)May–July(Aug–Sep)/0–985	Not expected to occur. Suitable habitat is absent from the BSA.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
<i>Monolopia gracilens</i>	woodland woollythreads	None/None/1B.2	Broadleaved upland forest (openings), Chaparral (openings), Cismontane woodland, North Coast coniferous forest (openings), Valley and foothill grassland; Serpentine/annual herb/(Feb)Mar–July/330–3,935	Not expected to occur. The BSA is outside the species' known elevation range.
<i>Pedicularis dudleyi</i>	Dudley's lousewort	None/SR/1B.2	Chaparral (maritime), Cismontane woodland, North Coast coniferous forest, Valley and foothill grassland/perennial herb/Apr–June/195–2,955	Not expected to occur. The BSA is outside of the species' known elevation range.
<i>Penstemon rattanii</i> var. <i>kleei</i>	Santa Cruz Mountains beardtongue	None/None/1B.2	Chaparral, Lower montane coniferous forest, North Coast coniferous forest/perennial herb/(Mar)May–June/1,310–3,610	Not expected to occur. The BSA is outside of the species' known elevation range and suitable habitat is absent.
<i>Pentachaeta bellidiflora</i>	white-rayed pentachaeta	FE/SE/1B.1	Cismontane woodland, Valley and foothill grassland (often serpentine)/annual herb/Mar–May/115–2,035	Not expected to occur. There are no modern records of this species within 5 miles of the BSA.
<i>Pinus radiata</i>	Monterey pine	None/None/1B.1	Cismontane woodland, Closed-cone coniferous forest/perennial evergreen tree/N.A./80–605	Not expected to occur. There are no CNDDDB records of this species naturally occurring within 5 miles of the BSA. Species is widely planted as an ornamental or wind break outside its natural range.
<i>Piperia candida</i>	white-flowered rein orchid	None/None/1B.2	Broadleaved upland forest, Lower montane coniferous forest, North Coast coniferous forest; Serpentine (sometimes)/perennial herb/(Mar–Apr)May–Sep/100–4,300	Not expected to occur. Suitable habitat is absent from the BSA.
<i>Plagiobothrys chorisianus</i> var. <i>chorisianus</i>	Choris' popcornflower	None/None/1B.2	Chaparral, Coastal prairie, Coastal scrub; Mesic/annual herb/Mar–June/10–525	Not expected to occur. Suitable habitat is absent from the BSA.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
<i>Plagiobothrys diffusus</i>	San Francisco popcornflower	None/SE/1B.1	Coastal prairie, Valley and foothill grassland/annual herb/Mar–June/ 195–1,180	Not expected to occur. The BSA is outside of the species' known elevation range and suitable habitat is absent.
<i>Polygonum hickmanii</i>	Scotts Valley polygonum	FE/SE/1B.1	Valley and foothill grassland (mudstone, sandstone)/annual herb/May–Aug/ 690–820	Not expected to occur. The BSA is outside of the species' known elevation range and suitable habitat is absent.
<i>Senecio aphanactis</i>	chaparral ragwort	None/None/1B.2	Chaparral, Cismontane woodland, Coastal scrub; Alkaline (sometimes)/annual herb/Jan–Apr(May)/50–2,625	Not expected to occur. There are no CNDDDB records of this species within 5 miles of the BSA.
<i>Stebbinsoseris decipiens</i>	Santa Cruz microseris	None/None/1B.2	Broadleafed upland forest, Chaparral, Closed-cone coniferous forest, Coastal prairie, Coastal scrub, Valley and foothill grassland; Openings, Serpentine (sometimes)/annual herb/Apr–May/ 35–1,640	Not expected to occur. Suitable habitat is absent from the BSA.
<i>Trifolium buckwestiorum</i>	Santa Cruz clover	None/None/1B.1	Broadleafed upland forest, Cismontane woodland, Coastal prairie; Gravelly/annual herb/Apr–Oct/ 115–2,000	Unlikely to occur. There are three recent records within 5 miles of the BSA in the vicinity of Englesman/Long Meadow (Calflora 2026). However, the coast live oak woodland habitats in the BSA are regularly moved as part of Neary Lagoon Park. Additionally, the species has not been observed in Neary Lagoon Park.
<i>Trifolium polyodon</i>	Pacific Grove clover	None/SR/1B.1	Closed-cone coniferous forest, Coastal prairie, Meadows and seeps, Valley and foothill grassland; Granitic (sometimes), Mesic/annual herb/Apr–June(July)/ 15–1,395	Not expected to occur. Suitable habitat is absent from the BSA.

Status Legend

FE: Federally listed as endangered

FT: Federally listed as threatened

FC: Federal Candidate for listing

SE: State listed as endangered

ST: State listed as threatened

SC: State Candidate for listing

SR: State Rare

CRPR 1A: Plants presumed extirpated in California and either rare or extinct elsewhere

CRPR 1B: Plants rare, threatened, or endangered in California and elsewhere

CRPR2A: Plants presumed extirpated in California but common elsewhere

CRPR2B: Plants rare, threatened, or endangered in California but more common elsewhere

.1 Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)

.2 Moderately threatened on California (20-80% occurrences threatened/low degree and immediacy of threat)

.3 Not very threatened in California (<20% of occurrences threatened/low degree and immediacy of threat or no current threats known)

References

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Appendix E

Wildlife Species Potential to Occur

Scientific Name	Common Name	Status* (Federal/State)	Habitat	Potential to Occur
Invertebrates				
<i>Bombus crotchii</i>	Crotch's bumble bee	None/SCE	Open grassland and scrub communities supporting suitable floral resources.	Unlikely to occur. Suitable habitat is absent from the BSA. There is one recent CNDDDB record from 2025 within 5 miles of the BSA (Occ. No. 643) mapped to Pleasure Point Park (CDFW 2026).
<i>Bombus occidentalis</i>	western bumble bee	None/SCE	Once common and widespread, species has declined precipitously from central California to southern British Columbia, perhaps from disease.	Not expected to occur. The BSA is outside the current range of the species. There are no recent (≤ 20 years) CNDDDB records of this species within 5 miles of the BSA.
<i>Cicindela ohlone</i>	Ohlone tiger beetle	FE/None	Remnant native grasslands with California oatgrass (<i>Danthonia californica</i>) and purple needlegrass (<i>Stipa pulchra</i>) in Santa Cruz County.	Unlikely to occur. Suitable habitat is absent from the BSA. There is one recent CNDDDB record from 2006 within 5 miles of the BSA (Occ. No. 5) mapped to West Marshall Field at UC Santa Cruz (CDFW 2026).
<i>Danaus plexippus plexippus</i> pop. 1	monarch - California overwintering population	FPT/None	Wind-protected tree groves with nectar sources and nearby water sources.	Potential to occur. There are nine recent (≤ 20 years) CNDDDB records within 5 miles of the BSA (Occ. Nos. 58, 59, 60, 100, 103, 105, 110, 241 and 407) mapped to the Rispin Mansion site, Escalona Gulch, Natural Bridges State Beach, Twin Lakes, Home of Peace Cemetery, Moore Creek, Lighthouse Field State Beach, Morgan Lake riparian corridor, the mouth of the San Lorenzo River, and the UCSC Arboretum (CDFW 2026).
<i>Euphilotes enoptes smithi</i>	Smith's blue butterfly	FE/None	Sand dunes, scrub, chaparral, grassland, and their ecotones.	Not expected to occur. Suitable habitat is absent from the BSA and the BSA is outside the current range of the species. There are no CNDDDB records within 5 miles of the BSA.
<i>Polyphylla barbata</i>	Mount Hermon (=barbate) June beetle	FE/None	Known only from sand hills in vicinity of Mount Hermon, Santa Cruz County.	Not expected to occur. Suitable habitat is absent from the BSA and the BSA is outside the current range of the species. There are no CNDDDB records of this species within 5 miles of the BSA.

Scientific Name	Common Name	Status* (Federal/State)	Habitat	Potential to Occur
<i>Trimerotropis infantilis</i>	Zayante band-winged grasshopper	FE/None	Isolated sandstone deposits in the Santa Cruz Mountains (the Zayante Sand Hills ecosystem).	Not expected to occur. Suitable sandstone habitat is absent from the BSA. There are no recent (≤ 20 years) CNDDDB records of this species within 5 miles of the BSA.
Fish				
<i>Entosphenus tridentatus</i>	Pacific lamprey	None/SSC	Freshwater habitat includes lakes, rivers, and creeks; soft substrates in shallow areas along banks.	Not expected to occur. Suitable aquatic habitat is absent from the BSA.
<i>Eucyclogobius newberryi</i>	tidewater goby	FE/SSC	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County, to the mouth of the Smith River.	Not expected to occur. Suitable aquatic habitat is absent from the BSA.
<i>Lavinia symmetricus subditus</i>	Monterey roach	None/SSC	Tributaries to Monterey Bay, specifically the Salinas, Pajaro, and San Lorenzo drainages. Generally found in small, intermittent streams, where dense populations are often observed in isolated pools.	Not expected to occur. Suitable aquatic habitat is absent from the BSA.
<i>Oncorhynchus kisutch</i> pop. 4	coho salmon - central California coast ESU	FE/SE	Streams and small freshwater tributaries during first half of life cycle and estuarine and marine waters of the Pacific Ocean during the second half of life cycle. Spawns in small streams with stable gravel substrates.	Not expected to occur. Suitable aquatic habitat is absent from the BSA.
<i>Oncorhynchus mykiss irideus</i> pop. 8	steelhead - central California coast DPS	FT/SSC	Coastal basins from Redwood Creek south to the Gualala River, inclusive; does not include summer-run steelhead.	Not expected to occur. Suitable aquatic habitat is absent from the BSA.

Scientific Name	Common Name	Status* (Federal/State)	Habitat	Potential to Occur
<i>Thaleichthys pacificus</i>	eulachon	FT/SSC	Found in Klamath River, Mad River, and Redwood Creek and in small numbers in Smith River and Humboldt Bay tributaries.	Not expected to occur. Suitable aquatic habitat is absent from the BSA and the BSA is outside the known range of the species.
Amphibians				
<i>Ambystoma macrodactylum croceum</i>	Santa Cruz long-toed salamander	FE/FP, SE	Dense riparian vegetation, thick coastal scrub, and oak woodland.	Not expected to occur. The BSA is outside the known range of this species in Santa Cruz County. There are no CNDDDB records within 5 miles of the BSA.
<i>Aneides flavipunctatus niger</i>	Santa Cruz black salamander	None/SSC	Restricted to mesic forests in the fog belt of the outer Coast Range of San Mateo, Santa Cruz, and Santa Clara counties. Mixed deciduous and coniferous woodlands and coastal grasslands. Occurs in moist streamside microhabitats and is found under rocks, talus, and damp woody debris.	Unlikely to occur. Suitable streamside or mesic boulder field habitat is absent from the BSA. There are three recent (≤ 20 years) records within 5 miles of the BSA (Occ. Nos. 42, 76 & 77) mapped to UCSC's Quarry Amphitheater, near Hwy 9 in Henry Cowell Redwoods State Park, and near Spring Box Trail in Pogonip Open Space Preserve (CDFW 2026).
<i>Dicamptodon ensatus</i>	California giant salamander	None/SSC	Known from wet coastal forests and chaparral near streams and seeps from Mendocino Co. south to Monterey Co. and east to Napa Co. Aquatic larvae found in cold, clear streams, occasionally in lakes and ponds. Adults known from wet forests under rocks and logs near streams and lakes.	Unlikely to occur. Suitable aquatic habitat is absent from the BSA. There is one CNDDDB record from 2014 within 5 miles of the BSA (Occ. No. 125) mapped to Cave Gulch along Empire Grade (CDFW 2026).
<i>Rana boylei</i> pop. 4	foothill yellow-legged frog - central coast DPS	FT/SE	Rocky streams and rivers with open banks in forest, chaparral, and woodland.	Unlikely to occur. There is one CNDDDB record from 2021 within 5 miles of the BSA (Occ. No. 102) mapped to Soquel Creek (CDFW 2026).
<i>Rana draytonii</i>	California red-legged frog	FT/SSC	Lowland streams, wetlands, riparian woodlands, livestock ponds; dense, shrubby or	Unlikely to occur. Suitable aquatic habitat is absent from the BSA but occurs in the vicinity. There are four recent (≤ 20 years) CNDDDB records

Scientific Name	Common Name	Status* (Federal/State)	Habitat	Potential to Occur
			emergent vegetation associated with deep, still or slow-moving water; uses adjacent uplands.	within 5 miles of the BSA (Occ. Nos. 234, 323, 324 & 549) mapped to Moore Creek, Terrace Point, Wilder Sand Quarry and Lombardi and Baldwin Creek lagoons (CDFW 2026). However, this species is not known to occur east of Moore Creek in the City of Santa Cruz (G. Kittleson, personal communication, March 27, 2025).
Reptiles				
<i>Actinemys marmorata</i>	northwestern pond turtle	FPT/SSC	Slow-moving permanent or intermittent streams, ponds, small lakes, and reservoirs with emergent basking sites; adjacent uplands used for nesting and during winter.	Potential to occur. Suitable aquatic habitat is absent from the BSA but occurs in the vicinity. Suitable upland nesting habitat is present in the live oak woodland habitat in the north area of the BSA adjacent to Neary Lagoon. There are two research-grade observations (2017 & 2018) within Neary Lagoon (iNaturalist 2026). This species is known to occupy Neary Lagoon at the outfall (G. Kittleson, personal communication, March 27, 2025).
<i>Thamnophis sirtalis tetrataenia</i>	San Francisco garter snake	FE/FP, SE	Wide range of habitats including grasslands or wetlands adjacent to ponds, marshes, and sloughs.	Not expected to occur. Suitable aquatic habitat is absent from the BSA but occurs in the vicinity. However, the BSA is outside the known range of the species. There are no CNDDB records within 5 miles of the BSA.
Birds				
<i>Agelaius tricolor</i> (nesting colony)	tricolored blackbird	None/SSC, ST	Nests near freshwater, emergent wetland with cattails or tules, but also in Himalayan blackberry; forages in grasslands, woodland, and agriculture.	Unlikely to occur. Suitable emergent wetland habitat is absent from the BSA but occurs in the vicinity. There is one CNDDB record from 2014 at Neary Lagoon (Occ. No. 166; CDFW 2026). However, local experts report that the species has been extirpated from the region for the past 20 years (G. Kittleson, personal communication, March 27, 2025).

Scientific Name	Common Name	Status* (Federal/State)	Habitat	Potential to Occur
<i>Anarhynchus montanus</i> (wintering)	mountain plover	None/SSC	Winters in shortgrass prairies, plowed fields, open sagebrush, and sandy deserts.	Not expected to occur. Suitable habitat is absent from the BSA. There are no CNDDDB records within 5 miles of the BSA.
<i>Anarhynchus nivosus nivosus</i> (nesting)	western snowy plover	FT /SSC	On coasts nests on sandy marine and estuarine shores; in the interior nests on sandy, barren or sparsely vegetated flats near saline or alkaline lakes, reservoirs, and ponds.	Not expected to occur. Suitable nesting habitat is absent from the BSA. There are no recent (≤ 20 years) CNDDDB records within 5 miles of the BSA.
<i>Aquila chrysaetos</i> (nesting and wintering)	golden eagle	None/FP, WL	Nests and winters in hilly, open/semi-open areas, including shrublands, grasslands, pastures, riparian areas, mountainous canyon land, open desert rimrock terrain; nests in large trees and on cliffs in open areas and forages in open habitats.	Not expected to occur. There are no records of the species breeding within 5 miles of the BSA (G. Kittleson, personal communication, March 27, 2025).
<i>Athene cunicularia</i> (burrow sites and some wintering sites)	burrowing owl	None/SSC, SC	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows.	Not expected to occur. Suitable habitat is absent from the BSA. There are two recent (≤ 20 years) CNDDDB records within 5 miles of the BSA (Occ. Nos. 76 & 1226) mapped to Wilder Ranch State Park and East Remote Parking Lot at UC Santa Cruz (CDFW 2026). This species is a winter visitor and is not known to breed within 5 miles of the BSA (G. Kittleson, personal communication, March 27, 2025).
<i>Brachyramphus marmoratus</i> (nesting)	marbled murrelet	FT/SE	Nests in old-growth coastal forests, forages in subtidal and pelagic habitats.	Not expected to occur. Suitable habitat is absent from the BSA. There are no CNDDDB records within 5 miles of the BSA.
<i>Circus hudsonius</i> (nesting)	northern harrier	None/SSC	Nests in open wetlands (marshy meadows, wet lightly-grazed pastures, old fields, freshwater and brackish marshes); also in drier habitats (grassland and grain fields); forages in grassland,	Unlikely to occur. Suitable breeding habitat is absent from the BSA but present in the vicinity. There are no CNDDDB records within 5 miles.

Scientific Name	Common Name	Status* (Federal/State)	Habitat	Potential to Occur
			scrubs, rangelands, emergent wetlands, and other open habitats.	
<i>Coccyzus americanus occidentalis</i> (nesting)	western yellow-billed cuckoo	FT/SE	Nests in dense, wide riparian woodlands and forest with well-developed understories.	Not expected to occur. Suitable habitat is absent from the BSA and the BSA is outside the known range of the species. There are no CNDDDB records within 5 miles of the BSA.
<i>Contopus cooperi</i> (nesting)	olive-sided flycatcher	None/SSC	Nests in mixed-conifer, montane hardwood-conifer, Douglas-fir, redwood, red fir, and lodgepole pine habitats; usually close to water.	Not expected to occur. Suitable habitat is absent from the BSA. There are no CNDDDB records within 5 miles of the BSA.
<i>Coturnicops noveboracensis</i>	yellow rail	None/SSC	Nesting requires wet marsh/sedge meadows or coastal marshes with wet soil and shallow, standing water.	Unlikely to occur. Suitable habitat is absent from the BSA but present in the vicinity. There are no recent (≤ 20 years) CNDDDB records within 5 miles of the BSA.
<i>Cypseloides niger</i> (nesting)	black swift	None/SSC	Nests in moist crevices, caves, and cliffs behind or adjacent to waterfalls in deep canyons; forages over a wide range of habitats.	Unlikely to occur. Suitable nesting habitat is absent from the BSA. There are no recent (≤ 20 years) CNDDDB records within 5 miles of the BSA.
<i>Elanus leucurus</i> (nesting)	white-tailed kite	None/FP	Nests in woodland, riparian, and individual trees near open lands; forages opportunistically in grassland, meadows, scrubs, agriculture, emergent wetland, savanna, and disturbed lands.	Potential to occur. Suitable nesting habitat is present in the BSA and vicinity. There are no recent (≤ 20 years) CNDDDB records within 5 miles of the BSA. There are two research-grade observations from 2018 in Neary Lagoon (iNaturalist 2026).
<i>Geothlypis trichas sinuosa</i>	saltmarsh common yellowthroat	None/SSC	Nests and forages in emergent wetlands including woody swamp, brackish marsh, and freshwater marsh.	Not expected to occur. Suitable habitat is absent from the BSA but present in the vicinity. However, the BSA is outside the current range of the species. There are no CNDDDB records within 5 miles of the BSA.
<i>Gymnogyps californianus</i>	California condor	FE/FP, SE	Nests in rock formations, deep caves, and occasionally in cavities	Not expected to occur. Suitable nesting and foraging habitat are absent from the BSA and

Scientific Name	Common Name	Status* (Federal/State)	Habitat	Potential to Occur
			in giant sequoia trees (<i>Sequoiadendron giganteus</i>); forages in relatively open habitats where large animal carcasses can be detected.	vicinity. There are no CNDDDB records within 5 miles of the BSA.
<i>Haliaeetus leucocephalus</i> (nesting and wintering)	bald eagle	FD/FP, SE	Nests in forested areas adjacent to large bodies of water, including seacoasts, rivers, swamps, large lakes; winters near large bodies of water in lowlands and mountains.	Not expected to occur. Suitable foraging habitat is present in the BSA and vicinity, but there are no records of successful nesting within the City of Santa Cruz (G. Kittleson, personal communication, March 27, 2020). There are no CNDDDB records within 5 miles of the BSA.
<i>Laterallus jamaicensis coturniculus</i>	California black rail	None/FP, ST	Tidal marshes, shallow freshwater margins, wet meadows, and flooded grassy vegetation; suitable habitats are often supplied by canal leakage in Sierra Nevada foothill populations.	Not expected to occur. Suitable habitat is absent from the BSA but present in the vicinity. There are no recent (≤ 20 years) CNDDDB records within 5 miles of the BSA.
<i>Melospiza melodia graminea</i>	Channel Island song sparrow	None/SSC	Nests and forages in dense shrub habitats and grasslands with scattered scrub.	Not expected to occur. Suitable habitat is absent from the BSA and vicinity. There are no CNDDDB records within 5 miles of the BSA.
<i>Passerculus sandwichensis beldingi</i>	Belding's savannah sparrow	None/SE	Nests and forages in coastal saltmarsh dominated by pickleweed (<i>Salicornia</i> spp.).	Not expected to occur. Suitable habitat is absent from the BSA and vicinity. There are no CNDDDB records within 5 miles of the BSA.
<i>Riparia riparia</i> (nesting)	bank swallow	None/ST	Nests in riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with sandy soils; open country and water during migration.	Not expected to occur. Suitable nesting habitat is absent from the BSA and vicinity. There are no recent (≤ 20 years) CNDDDB records within 5 miles of the BSA.
<i>Rynchops niger</i> (nesting colony)	black skimmer	None/SSC	Nests on barrier beaches, shell banks, spoil islands, and saltmarsh; forages over open water; roosts on sandy beaches and gravel bars.	Not expected to occur. Suitable breeding habitat is absent from the BSA. There are no CNDDDB records within 5 miles of the BSA.

Scientific Name	Common Name	Status* (Federal/State)	Habitat	Potential to Occur
<i>Sternula antillarum browni</i> (nesting colony)	California least tern	FE/FP, SE	Forages in shallow estuaries and lagoons; nests on sandy beaches or exposed tidal flats.	Not expected to occur. Suitable habitat is absent from the BSA, but suitable foraging habitat is present in the vicinity. There are no CNDDDB records within 5 miles of the BSA.
<i>Vireo bellii pusillus</i> (nesting)	least Bell's vireo	FE/SE	Nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams; forages in riparian and adjacent shrubland late in nesting season.	Not expected to occur. The BSA is outside the known range of the species. There are no CNDDDB records within 5 miles of the BSA.
Mammals				
<i>Antrozous pallidus</i>	pallid bat	None/SSC	Grasslands, shrublands, woodlands, forests; most common in open, dry habitats with rocky outcrops for roosting, but also roosts in man-made structures and trees.	Unlikely to occur. Suitable roosting habitat is absent from the BSA. There are no recent (≤ 20 years) CNDDDB records within 5 miles of the BSA.
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	None/SSC	Mesic habitats characterized by coniferous and deciduous forests and riparian habitat, but also xeric areas; roosts in limestone caves and lava tubes, man-made structures, and tunnels.	Unlikely to occur. Suitable roosting habitat is absent from the BSA and vicinity. There are no recent (≤ 20 years) CNDDDB records within 5 miles of the BSA. There is one recent (2020) record from a cave in Cave Gulch west of Empire Grade near UC Santa Cruz (iNaturalist 2026).
<i>Lasiurus frantzii</i>	Western red bat	None/SSC	Forest, woodland, riparian, mesquite bosque, and orchards, including fig, apricot, peach, pear, almond, walnut, and orange; roosts in tree canopy.	Potential to occur. Suitable roosting habitat is present in the coast live oak woodland areas of the BSA. There are no CNDDDB records within 5 miles of the BSA. There are three research-grade observations of this species within Santa Cruz County: one dead individual found at UC Santa Cruz campus, one dead individual found in 2023 in the San Lorenzo River floodplain, and three captured in 2019 at Sierra Azul Open Space Preserve (iNaturalist 2026).

Scientific Name	Common Name	Status* (Federal/State)	Habitat	Potential to Occur
<i>Puma concolor</i>	mountain lion - Southern California/Central Coast ESU	None/SC	Scrubs, chaparral, riparian, woodland, and forest; rests in rocky areas and on cliffs and ledges that provide cover; most abundant in riparian areas and brushy stages of most habitats throughout California, except deserts.	Unlikely to occur. Suitable habitat is absent from the BSA. There are no CNDDB records within 5 miles of the BSA.
<i>Taxidea taxus</i>	American badger	None/SSC	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils.	Unlikely to occur. Suitable habitat is absent from the BSA. There are no recent (≤ 20 years) CNDDB records within 5 miles of the BSA.

***Status:**

FE: Federally Endangered

FT: Federally Threatened

FP: Fully Protected Species

SE: State Endangered

ST: State Threatened

SC: State Candidate for Listing

SSC: Species of Special Concern

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Appendix C

Archaeological Inventory Report

Archaeological Inventory Report

City of Santa Cruz Wastewater Treatment Facility Energy and Electric Resiliency Project

OCTOBER 2026

Prepared for:

CITY OF SANTA CRUZ, PUBLIC WORKS DEPARTMENT

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Archaeological and other heritage resources can be damaged or destroyed through uncontrolled public disclosure of information regarding their location. This document contains sensitive information regarding the nature and location of archaeological sites that should not be disclosed to the general public or unauthorized persons.

Information regarding the location, character, or ownership of a cultural resource is exempt from the Freedom of Information Act pursuant to 16 U.S.C. 470w-3 (National Historic Preservation Act) and 16 U.S.C. Section 470(h) (Archaeological Resources Protections Act).

National Archaeological Database Information

Authors:	Sarah Brewer, M.A., RPA and Brooke Crumpton, BA
Firm:	Dudek
Project Proponent:	City of Santa Cruz, Public Works Department
Report Date:	October 2026
Report Title:	Archaeological Inventory Report, City of Santa Cruz Wastewater Treatment Facility Energy and Electric Resiliency Project, Santa Cruz, Santa Cruz County, California
Type of Study:	Archaeological Inventory
Resources:	P-44-000085; P-44-000274; P-44-000377, P-44-001254
USGS Quads:	7.5-minute Santa Cruz Quad; City of Santa Cruz, Santa Cruz County
Acreage:	6.16 acres
Permit Numbers:	N/A
Keywords:	City of Santa Cruz; Wastewater Treatment Facility; WWTF; Energy and Electric Resiliency Project; archaeological inventory; P-44-000085; P-44-000274; P-44-000377; P-44-001254; Neary's Lagoon; La Barranca Park

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Acronyms and Abbreviations

Acronym/ Abbreviation	Definition
ADI	Area of Direct Impact
APE	Area of Potential Effects
APN	Assessor's Parcel Number
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CHRIS	California Historical Resources Information System
CRHR	California Register of Historical Resources
CWSRF	Clean Water State Revolving Fund
DPR	Department of Parks and Recreation
EPA	U.S. Environmental Protection Agency
GIS	Geographic Information System
MLD	Most Likely Descendant
MW	Megawatt
NAHC	Native American Heritage Commission
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
NWIC	Northwest Information Center
OHP	Office of Historic Preservation
PRC	Public Resources Code
SLF	Sacred Lands File
SPRR	Southern Pacific Railroad
SRF	State Revolving Fund
USDA	United States Department of Agriculture
USGS	United States Geological Survey
WWTF	Wastewater Treatment Facility

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Executive Summary

The City of Santa Cruz proposes to modernize electrical distribution and standby power systems at its Wastewater Treatment Facility (WWTF) at 110 California Street to improve reliability, resiliency, operational flexibility, worker safety, and emergency preparedness. Work would occur primarily within the developed WWTF campus, with limited trenching and installation of service gear in La Barranca Park and use of existing conduit beneath the railroad alignment. This archaeological inventory supports the City's review under the California Environmental Quality Act (CEQA) and anticipated Section 106 compliance associated with potential Clean Water State Revolving Fund assistance.

The 6.16-acre Area of Direct Impact encompasses the Project footprint and areas where construction, staging, access, or related activities could disturb soils. Identification efforts included a California Historical Resources Information System records search through the Northwest Information Center, review of previous studies and resource records, a Native American Heritage Commission Sacred Lands File search, Native American outreach, initiation of Assembly Bill 52 consultation by the City, intensive pedestrian survey, and excavation of two hand-auger probes. No archaeological materials were identified during survey or auger testing.

Four previously recorded resources were assessed. The mapped boundary of P-44-000085 was determined to be inaccurate; the resource does not intersect the Project area, and its record was updated. P-44-000274, the Neary's Lagoon Archaeological Site Complex, overlaps the Project area, but no recorded concentrations, contributing elements, or cultural deposits were identified within proposed disturbance areas. P-44-000377, a segment of the Southern Pacific Railroad recommended eligible for the National Register of Historic Places, would be avoided through use of existing conduit beneath the railway. P-44-001254, the WWTF campus, was evaluated separately and recommended not eligible for the National Register of Historic Places, California Register of Historical Resources, or City of Santa Cruz Historic Resource Inventory.

Based on the inventory, the Project is not expected to cause a substantial adverse change in the significance of a historical resource under CEQA. For Section 106, Dudek supports a finding of no historic properties affected because P-44-000085 is outside the Project area, no contributing elements of P-44-000274 were identified within proposed disturbance areas, P-44-000377 would be avoided, and P-44-001254 is not eligible.

Dudek recommends a cultural resources Worker Environmental Awareness Training and standard inadvertent-discovery procedures for cultural resources and human remains be implemented for the Project. Tribal monitoring may also be required if requested or established through ongoing consultation.

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1 Introduction

1.1 Project Location

The Project is located at the City's Wastewater Treatment Facility (WWTF) at 110 California Street in the City of Santa Cruz, California, and consists of five parcels (Assessor's Parcel Numbers [APNs]): 004-331-02, 004-331-03, 004-331-05, 004-331-06, and 004-331-08 (Figure 1). The WWTF is adjacent to La Barranca Park to the south and Neary Lagoon Park and Wildlife Refuge to the north. Surrounding areas are residential neighborhoods along Bay Street and California Street with the Southern Pacific Railroad (SPRR) and Coastal Rail Trail running southwest of the facility. The majority of the work will take place within the developed footprint of the WWTF, although some utility trenching may occur immediately outside the WWTF campus to the south. Additionally, new service gear will be installed within La Barranca Park, south of the WWTF campus, with cables running through existing conduit beneath the SPRR alignment (Figure 2).

1.2 Project Description

The Project will modernize and improve the electrical distribution system at the WWTF to improve electrical system reliability, resiliency, operational flexibility, worker safety, and emergency preparedness in support of long-term facility operations. The Project includes replacement of deteriorated underground electrical distribution lines, completion of a redundant facility-wide electrical loop, replacement and consolidation of substations, transformers, and switchgear, demolition of the existing maintenance building, construction of a new main electrical building, installation of a new centralized standby power generation system, and upgrades to electrical equipment serving treatment processes such as interstage pumps and aeration blowers. The Project will replace obsolete medium-voltage equipment with modern electrical systems, incorporate upgraded controls and variable-frequency drives, and provide infrastructure capable of supporting long-term WWTF operations.

Most work will occur within developed portions of the WWTF. Project construction would include replacement of aging 21-kV electrical distribution equipment and installation of new underground conduits and conductors where needed to replace obsolete infrastructure and complete gaps in the electrical loop. Existing underground conduit systems, duct banks, manholes, handholes, and utility corridors will be reused where feasible. New duct bank trenching will generally be approximately 3 feet wide and up to 6 feet deep within the existing WWTF footprint, including an approximately 625-foot-long duct bank along the facility perimeter. Minor excavation will be required within existing substation footprints and adjacent hardscape areas for equipment removal and replacement, with excavation depths varying from approximately 2 to 6 feet depending on conditions. Proposed work at Substation 3A/3B may require adjustment of the alignment depending on subsurface conditions.

The existing maintenance building will be demolished and replaced with a new approximately 2,000-square-foot main metal-framed electrical building that would house primary switchgear, communications equipment, battery systems, fire suppression systems, heating and cooling equipment, and facility storage. The Project will also remove existing standby generators and install a new centralized 2.5-MW standby diesel generator within the footprint of the demolished maintenance building in a separate metal enclosure. Temporary power systems, generator connections, bypass electrical systems, temporary feeders, and temporary utility connections will be used as needed to maintain uninterrupted WWTF operations during construction. Construction activities will include demolition, excavation, grading, trenching, utility relocation, concrete placement, structural construction,

equipment installation, crane operations, paving repair, testing, and commissioning. The Project is anticipated to occur over approximately 2.5 years, including final design, equipment procurement, demolition, construction, testing, and commissioning. Following construction, the WWTF will continue operating as an existing wastewater treatment facility; the Project will not increase treatment capacity or expand service areas.

1.3 Area of Potential Effects/Area of Direct Impact

The establishment of an APE is part of the regulatory process to identify historic properties under Section 106 (36 CFR § 800.4[a][1]). The APE is the area delineated to assess potential effects from the construction and operation of an undertaking (or project) with a federal nexus on both archaeological and historic built environment resources. The APE encompasses the geographic area or areas within which the project may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of the project and may be different for different kinds of effects caused by the project (36 CFR § 800.16[d]).

An effect, as defined under 36 CFR § 800.16(i), means an alteration to the characteristics of a historic property that qualify it for inclusion in, or eligibility for, the NRHP. An effect is considered adverse, according to the criteria of adverse effect, “when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register [of Historic Places] in a manner that would diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association” (36 CFR § 306107).

A direct effect means that the effect comes from the project at the same time and place with no intervening cause regardless of its specific type (e.g., physical, visual, vibratory, auditory, atmospheric, etc.). Examples of direct effects that are caused by, and immediately related to, the project include, but are not limited to, demolition, destruction, relocation, and alteration of a historic property as a result of ground disturbance and other construction activities. Direct effects, however, are not limited to physical effects, and in certain circumstances can be visual, vibratory, auditory, or atmospheric in nature if the effect is immediate and results in the alteration of characteristics that contribute to the significance of the historic property in a manner that diminishes its physical integrity.

The Area of Potential Effects (APE) is the area delineated to assess the potential impacts on cultural resources (built environment or archaeological) from the Project implementation. The Area of Direct Impact (ADI) encompasses the geographic area within which the project may directly cause a substantial adverse change in the significance of a known or unknown archaeological resource. CEQA does not use the term APE but refers to the area of potential impact as the “Project area”. For the purposes of this analysis, the CEQA “Project area” and the Section 106 “ADI” are identical and refer to the area where potential impacts to archaeological resources may occur. In this report, the term, ADI, will be used for both CEQA and Section 106 to reduce redundancy.

The ADI for the Project includes the Project footprint and all areas where construction, staging, access, or related activities could disturb native or previously disturbed soils. For the Project, these areas include portions of the WWTF campus, portions of La Barranca Park, and areas where trenching or related ground disturbance may occur (Figure 2). The vertical ADI is defined by the depth of ground disturbance, which will not exceed 10 feet in depth.

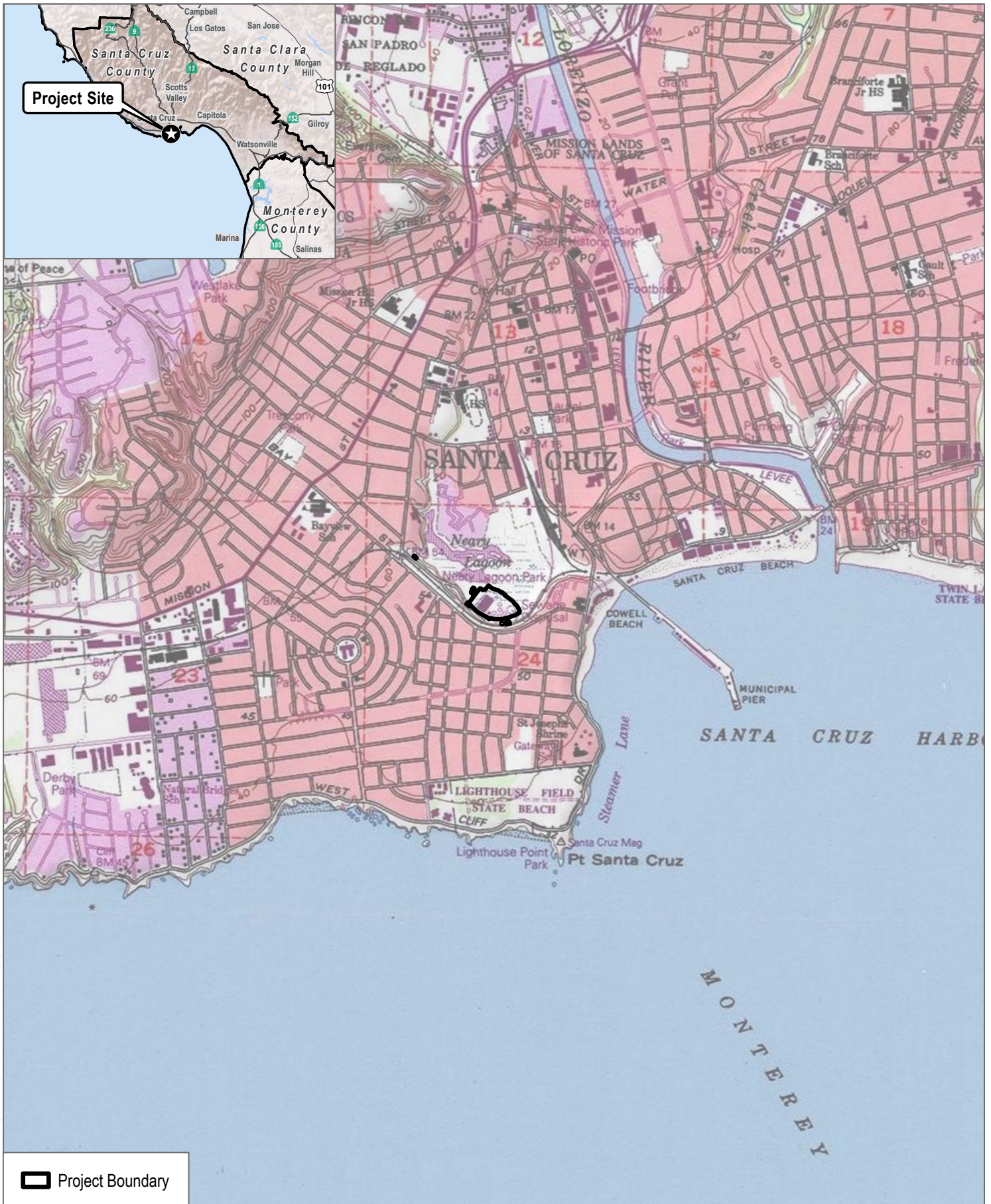


FIGURE 1
Project Location

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FIGURE 2

Cultural Area of Potential Effects

City of Santa Cruz Wastewater Treatment Plant Project

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2 Regulatory Context

2.1 Federal

The federal nexus for this Project is anticipated Clean Water State Revolving Fund (CWSRF or SRF) financial assistance. The CWSRF Program is administered in California by the State Water Resources Control Board and is partially funded by U.S. Environmental Protection Agency capitalization grants. For CWSRF-funded equivalency projects, applicants must demonstrate compliance with applicable federal environmental cross-cutting authorities, including Section 106.

National Historic Preservation Act (54 USC § 300101 et seq., including Section 106 of the NHPA, 54 USC § 306108)

The National Historic Preservation Act (NHPA) established the National Register of Historic Places (NRHP) and the Advisory Council on Historic Preservation (ACHP). Under the NHPA, significant cultural resources are referred to as historic properties, which include any prehistoric or historic district, site, building, structure, or object included in, or determined eligible for inclusion in, the NRHP. Historic properties that are designated by the Secretary of the Interior to be National Historic Landmarks are nationally significant historic places that possess exceptional value or quality in illustrating or interpreting the heritage of the United States. A property is considered historically significant if it meets one of the NRHP criteria and retains sufficient historic integrity to convey its significance.

Implementing Regulations for Section 106 of the NHPA (36 CFR Part 800)

Section 106 of the NHPA (Section 106) requires federal agencies to take into account the effects of their undertakings on historic properties. The Section 106 process consists of four principal steps: (1) initiation of the Section 106 process, which includes identifying and initiating consultation with Native American tribes, local governments, and other interested parties; (2) identification of historic properties; (3) assessment of adverse effects; and 4) delineation of stipulations to resolve adverse effects in an agreement document.

Section 106 affords the ACHP and the State Historic Preservation Officer (SHPO), as well as other consulting parties, a reasonable opportunity to comment on any project that would adversely affect historic properties. The ACHP is an independent administering agency that develops procedures at the federal level to protect cultural resources included in, or eligible for inclusion in, the NRHP. The SHPOs administer the national historic preservation program at the state level, in addition to reviewing NRHP nominations, maintaining data on historic properties, and consulting with federal agencies during the Section 106 review.

The NRHP criteria for evaluation (36 CFR Section 60.4) considers the quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that:

- A. Are associated with events that have made a significant contribution to the broad patterns of our history; or
- B. Are associated with the lives of persons significant in our past; or

- C. Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D. Have yielded or may be likely to yield, information important in prehistory or history.

To be listed in the NRHP, a property must not only be shown to be significant under the NRHP criteria, but it also must have integrity. Integrity is the ability of a property to convey its significance. Because the concept of integrity is based on significance, the assessment of a property's integrity can only proceed after its significance has been fully established. In addition to meeting at least one of the significance criteria discussed above, the assessment of integrity requires consideration under the following seven aspects or qualities: location, design, materials, workmanship, setting, feeling, and association. To retain integrity, a property will always possess several, and generally most, of these aspects (NPS 1997: 44).

Certain properties are not typically considered for listing in the NRHP: religious properties, moved properties, birthplaces and graves, cemeteries, reconstructed properties, commemorative properties, and properties achieving significance within the past 50 years. These properties may be eligible for listing in the NRHP if the property meets one of the four criteria listed above and if the property also meets the appropriate Criteria Consideration for the property.

National Environmental Policy Act, as amended (42 USC § 4321 et seq.)

The National Environmental Policy Act (NEPA), as amended, establishes the federal government's policy for protecting important historic, cultural, and natural aspects of our national heritage during the planning for federal projects. All federal or federally assisted projects requiring action pursuant to Section 102 of NEPA must take into account the effects of those projects on cultural resources. In considering whether an action may "significantly affect the quality of the human environment," NEPA requires federal agencies to consider the degree to which their actions may affect districts, sites, highways, structures, or objects listed in or eligible for listing in the NRHP. While NEPA and NHPA have independent statutory obligations, integrating their processes can streamline environmental reviews and ensure that cultural resources are adequately considered during federal project planning. When Section 106 of the NHPA and NEPA are integrated, project impacts that cause adverse effects under Section 106 are described in the NEPA document.

2.2 State of California

California Environmental Quality Act (PRC § 21083.2) and CEQA Guidelines (14 CCR § 15064.5)

CEQA requires that the lead agency consider the impacts of a project on historical resources. California Public Resources Code (PRC) Section 21084.1 defines historical resources as those listed, or eligible for listing, in the California Register of Historical Resources (CRHR), or those officially designated or recognized as historically significant by a local government pursuant to a local county or city ordinance or jurisdiction, unless the preponderance of the evidence demonstrates that the resource is not historically or culturally significant. Historical resources also include "historic properties" in California that are listed, or determined eligible for listing, in the NRHP and CRHR. The CEQA Guidelines provide specific guidance for determining the significance of impacts on historical resources. As described in in Section 15064.5(b) of the CEQA Guidelines, a "project with an effect 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.”

- A substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired (Section 15064.5[b][1]).
- The significance of an historical resource is materially impaired when a project:
 - Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the CRHR (Section 15064.5[b][2][A]); or
 - Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1[k] of the PRC or its identification in an historical resources survey meeting the requirements of section 5024.1[g] of the PRC, unless the public agency reviewing the effects of the project establishes by a preponderance of the evidence that the resource is not historically or culturally significant (Section 15064.5[b][2][B]); or
 - Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historic significance and that justify its inclusion in the CRHR as determined by a lead agency for purposes of CEQA (Section 15064.5[b][2][B]).

The CEQA Guidelines also provide guidance on minimizing or avoiding significant adverse impacts on historical resources as outlined in the following provisions of Section 15064.5(b)(3)-(5).

- Generally, a project that follows the Secretary of the Interior’s Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings or the Secretary of the Interior’s Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (1995), Weeks and Grimmer, shall be considered as mitigated to a level of less than a significant impact on the historical resource (Section 15064.5[b][3]).
- A lead agency shall identify potentially feasible measures to mitigate significant adverse changes in the significance of an historical resource. The lead agency shall ensure that any adopted measures to mitigate or avoid significant adverse changes are fully enforceable through permit conditions, agreements, or other measures (Section 15064.5[b][4]).
- When a project will affect state-owned historical resources, as described in PRC Section 5024, and the lead agency is a state agency, the lead agency shall consult with the SHPO as provided in PRC Section 5024.5. Consultation should be coordinated in a timely fashion with the preparation of the environmental documents (Section 15064.5[b][5]).

California Register of Historical Resources (PRC § 5024.1 and 14 CCR § 4850)

PRC Section 5024.1 establishes the CRHR, which lists all significant resources in California that are considered to be historical resources. In California, the term “historical resource” includes, but is not limited to, “any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is

significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California” (PRC Section 5020.1[j]). In 1992, the California legislature established the CRHR “to be used by state and local agencies, private groups, and citizens to identify the state’s historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change” (PRC Section 5024.1[a]). The criteria for listing resources in the CRHR were expressly developed to be in accordance with previously established criteria developed for listing in the NRHP. As such, a resource is considered historically significant if it meets at least one of the following criteria outlined under PRC Section 5024.1(c):

1. Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage.
2. Is associated with the lives of persons important in our past.
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
4. Has yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting one of the significance criteria described in PRC Section 5024.1(c), a resource must also possess sufficient integrity to qualify for listing in the CRHR. Integrity as defined in 14 California Code of Regulations (CCR) Section 4852(c) as “the authenticity of an historical resource’s physical identity evidenced by the survival of characteristics that existed during the resource’s period of significance” as evaluated with regard to the resource’s retention of location, design, setting, materials, workmanship, feeling, and association. Historical resources that lack sufficient integrity to meet the criteria for listing in the NRHP may still be eligible for listing in the CRHR if they have the potential to yield significant scientific, historical information, specific data.

The CRHR’s special considerations for certain property types are limited to moved buildings, structures or objects; historical resources achieving significance within the past 50 years; and reconstructed buildings.

The CRHR includes not only listed prehistoric and historic cultural resources but also resources that are identified through local historical resource surveys or designated under local ordinances provided the survey and ordinance meet the criteria in 14 CCR Section 4852(e) and (f).

Native American Historic Cultural Sites and Human Remains

Public Resources Code Section 5097 et seq. addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction. It also establishes procedures to be implemented if Native American skeletal remains are discovered during construction and establishes the Native American Heritage Commission (NAHC) to resolve disputes regarding the disposition of such remains. In addition, the Native American Historic Resource Protection Act makes it a misdemeanor to deface or destroy an Indian historic or cultural site that is listed in, or may be eligible for listing in, the CRHR.

California Health and Safety Code Section 7050.5 and CEQA Guidelines Section 15064.5(e), as incorporated from Public Resources Code Section 5097.98, establish procedures to follow if human remains are encountered. If human remains are discovered, excavation or other disturbance must be suspended in the area of the discovery and any nearby area reasonably suspected to overlie adjacent remains. The county coroner must be contacted to determine whether the remains are of Native American origin. If the coroner determines that the remains are Native American, the coroner must contact the NAHC within 24 hours. The NAHC then identifies a Most Likely Descendant,

who may make recommendations to the landowner or person responsible for excavation regarding treatment of the remains and associated grave goods with appropriate dignity.

2.3 Local

City of Santa Cruz

The Project will comply with City of Santa Cruz Code Section 24.12.430, which requires an archaeological survey and report identifying and inventorying archaeological resources for any project involving ground-disturbing work in an area classified as archaeologically sensitive. The subject property is classified as “Sensitive” for archaeological sensitivity on resource maps maintained by the City’s Planning Department. This report also supports local Policy HA1.2 of the City of Santa Cruz General Plan 2030.

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3 Environmental Context

The Project is located within the developed City of Santa Cruz Wastewater Treatment Facility (WWTF) campus, near suburban residential development along Bay Street and California Street, the SPRR and public multiuse pathway to the south and west, and Neary's Lagoon Park and Wildlife Refuge to the north and east. The WWTF campus is characterized primarily by buildings, paved surfaces, utility infrastructure, maintained landscaping, equipment pads, and other developed or previously disturbed areas, while adjacent open-space areas include lagoon, marshland, and coastal terrace settings (Figures 1 and 2).

Topography within the Project occupies two elevations, an upper terrace adjacent to Bay Street and a lower elevation at the WWTF campus. Each area is generally flat to gently sloping, with elevations ranging from approximately 15 to 56 feet above mean sea level. Santa Cruz County has a Mediterranean climate with warm, dry summers and cool, wet winters. Climate data reported for the National Weather Service cooperative station identified as Santa Cruz, California, indicate average annual precipitation of approximately 29.33 inches, most of which falls between December and March (WRCC 2026). The Natural Resources Conservation Service maps Watsonville loam, thick surface, 0 to 2 percent slopes, within the Project area. This soil series consists of deep, somewhat poorly drained soils formed in sedimentary alluvium on old marine terraces and valleys; however, soils within the WWTF and adjacent work areas have been substantially modified by facility construction, utility installation, paving, landscaping, railroad grading, erosion, imported materials, and modern disturbance (USDA 2017; SoilWeb 2026).

Geology in the Project vicinity is described as older Quaternary alluvium, Purisima Formation deposits, and marine terrace deposits containing marine sediments near the coast (Wagner et al. 2002; USGS 2026). Although the broader lagoon-margin and coastal terrace setting is archaeologically sensitive, the proposed work areas are largely developed, paved, filled, or otherwise disturbed. As a result, the likelihood of intact archaeological deposits within the proposed disturbance areas is low.

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4 Cultural Context

4.1 Precontact

The chronology of Indigenous groups living within Santa Cruz County follows general patterns identified in the archaeological record of the greater Central Coast region of California. These patterns reflect adaptive shifts in settlement, subsistence practices, exchange, and technology throughout the Holocene and earlier. The California Central Coast Chronology identifies six broad temporal periods: Paleo-Indian, Millingstone, Early, Middle, Middle-Late Transition, and Late (Jones et al. 2007).

Evidence of Paleo-Indian occupation in Santa Cruz County is uncommon and is generally represented by isolated flaked stone artifacts or sparse lithic scatters. Although fluted projectile points have not been identified in Santa Cruz County, an eccentric crescent discovered at a site in Scotts Valley provides evidence of early use of the region. Some early coastal sites may have been inundated by rising sea levels during the Holocene (Cartier 1993; Erlandson 2011; Jones and Jones 1992).

During the Millingstone and Early periods, human settlement became more frequent and occurred in varied landforms, including creeks, estuaries, and coastal settings. Sites from these periods commonly include flaked and ground stone artifacts, shell beads, and evidence of plant and marine resource use. The introduction and increased use of millingstones, handstones, mortars, and pestles indicate an increasing reliance on plant processing, while formalized projectile points suggest continued terrestrial hunting (Fitzgerald and Jones 1999; Hylkema 1991; Jones et al. 2007).

During the Middle, Middle-Late Transition, and Late periods, archaeological patterns indicate shifts toward longer-term occupation, specialized resource-processing localities, expanded exchange networks, and continued emphasis on marine and plant resources. Common artifacts include contracting-stemmed projectile points, bow-and-arrow point forms, shell beads, *Haliotis* ornaments, circular shell fishhooks, bone tools, grooved or notched stone net sinkers, mortars, pestles, and other ground stone tools (Jones 1995; Jones 2003; Jones et al. 2007).

4.2 Ethnohistoric

The Project area lies within the territory traditionally occupied by people referred to as “Costanoan” by Europeans at the time of contact; many modern descendants prefer the term “Ohlone” or the name of their specific tribal band. The Ohlone spoke eight dialects of the Penutian language family and lived between the vicinity of present-day Richmond in the north and Big Sur in the south. Ohlone groups were organized into approximately 50 autonomous polities or tribelets, and the Awaswas Ohlone dialect was reportedly spoken in the portion of Santa Cruz County that includes the Project area (Levy 1978; Milliken 1995).

Ethnographic accounts describe Ohlone communities as living in permanent villages while also using smaller seasonal camps to collect, process, and manage resources such as acorns, shellfish, and other plant and animal foods. Settlement and subsistence patterns varied by season and local environment, with coastal, lagoon, riparian, and upland settings supporting different resource-use activities (Levy 1978; Milliken 1995).

4.3 Historic

The Historic period in the Project region includes the Spanish Period (1769–1822), Mexican Period (1822–1848), and American Period (1848–Present). The Spanish Period began with the 1769 Portolá expedition and the establishment of the mission system in Alta California. Mission Santa Cruz was established in 1791 as the twelfth mission in the California Mission system, and Indigenous people from the region were incorporated into the mission economy and labor system (Hoover et al. 2002; Koch 1973; Lehmann 2000).

During the Mexican Period, Mexico gained independence from Spain, California ports were opened to foreign trade, and the Spanish missions were secularized. Lands formerly controlled by the missions were intended to be returned to local Native communities, but disease and population loss severely limited the number of eligible recipients in the Santa Cruz area. Extensive land grants were also established throughout present-day Santa Cruz County during this period (Hoover et al. 2002; Koch 1973; Lehmann 2000).

The American Period began after the Treaty of Guadalupe Hidalgo in 1848. Santa Cruz was designated as one of California's original counties in 1850, shortly before California statehood. During the second half of the nineteenth century, Santa Cruz County developed around lumber, mining, fishing, tanning, agriculture, transportation, and tourism. Rail connections completed in the 1870s improved access to Santa Cruz and supported the growth of beach tourism and west-side residential development (Koch 1973; Lehmann 2000).

The Project area is bounded by Bay Street and California Street, both of which appear on historical Sanborn maps as early as 1882. Growth on the west side of Santa Cruz coincided with the rise of tourism and expanding residential development, and Bay Street became an important route between Monterey Bay and Mission Street as the city continued to develop (LOC 2026; Lehmann 2000).

5 Identification Efforts

This report documents archaeological resource identification efforts conducted for CEQA and Section 106 review. The work included background research; review of environmental and cultural contexts; a CHRIS records search through the NWIC; review of previously recorded archaeological and built-environment resources; an NAHC Sacred Lands File search; Native American outreach; and an intensive pedestrian survey. These efforts were sufficient to identify and assess archaeological resources mapped within or near the Project ADI.

5.1 NWIC Records Search Results

To identify cultural resources potentially affected by the proposed Project, Dudek defined a records search study area that included the ADI and a 0.50-mile buffer. On January 22, 2026, Charles Mikulik Archaeological Consulting (CMAC), LLC conducted a records search at the Northwest Information Center (NWIC) of the California Historical Resources Information System (CHRIS) at Sonoma State University (NWIC File No. 25-1099). CMAC reviewed previously recorded resources and cultural resources studies within the Project ADI and 0.5-mile buffer and also consulted the National Register of Historic Places (NRHP), California Register of Historical Resources (CRHR), and the Archaeological Determinations of Eligibility. The full results of the CHRIS records search are provided in Appendix A.

Four studies were noted intersecting or encompassing the Project area: S-03964, S-12760, S-52428, and S-48695. Four resources were noted intersecting or encompassing the Project area: P-44-000085, a precontact lithic scatter; P-44-000274, a multicomponent site with five precontact artifact concentrations; P-44-000377, a railroad alignment; and P-44-001254, the Wastewater Treatment Facility campus.

5.1.1 Previously Conducted Studies

Four previous archaeological studies (S-003964, S-012760, S-048695 and S-052428) with six additional sub studies intersect the Project ADI (Table 1); 183 additional reports are within the 0.5-mile records search study buffer (see Appendix A).

Table 1. Previous Studies Conducted within the ADI

Report No.	Authors	Year	Title	Publisher
S-003964	N/A	1977	Santa Cruz Regional Wastewater Treatment System Project, Santa Cruz County, California	Ann S. Peak & Associates
S-012760	Stephen A. Dietz	1991	Archaeological Survey Report for the City of Santa Cruz Wastewater Treatment Plant Modification Program	Jones & Stokes Associates, Inc.
S-012760a	Stephen A. Dietz	1989	Cultural Resources Assessment, City of Santa Cruz Wastewater Treatment Plant Modification Program (letter report)	N/A
S-048695	John W. Snyder and Bonnie W. Parks	1992	Historical Architectural Survey Report for City of Santa Cruz Wastewater Treatment Plant Modification Program	P.S. Preservation Services

Table 1. Previous Studies Conducted within the ADI

Report No.	Authors	Year	Title	Publisher
S-052428	Lily Arias	2017	Historic Property Survey Report: HPPL-5025(061)	ICF International
S-052428a	Lily Arias	2018	Santa Cruz Rail Trail Segment 7 Project, Archaeological Survey Report	ICF
S-052428b	J. Tait Elder	2018	Finding of No Adverse Effect Without Standard Conditions for P-44-000085/CA-SCR-80, P-44-000274/CA-SCR-273/H, and P-44-000286/CA-SCR-293, Santa Cruz Rail Trail Segment 7 Project, City of Santa Cruz, Santa Cruz County, California	ICF
S-052428c	J. Tait Elder	2018	Environmentally Sensitive Area Action Plan for Santa Cruz Rail Trail Segment 7 Project, City of Santa Cruz, Santa Cruz County, California	ICF
S-052428d	N/A	2017	Custom Soil Resource Report for Santa Cruz County, California	U.S. Department of Agriculture
S-052428e	Julianne Polanco and Alexandra Bevk Neeb	2018	[FHWA_2018_0509_002] Finding of No Adverse Effect for the Santa Cruz Rail Trail Segment 7, Santa Cruz County, California	Office of Historic Preservation, California Department of Transportation

Note:

Studies within 0.5 miles of the ADI are located in Appendix A.

Previous studies within the ADI include reports prepared for the Santa Cruz Regional Wastewater Treatment System Project and the Santa Cruz Rail Trail Segment 7 Project. These studies are described in further detail below.

S-003964

Ann S. Peak & Associates (1977) conducted a study in compliance with Section 106 for upgrading and improvements of the wastewater treatment system. The improvements were to use Clean Water Grants to fund the project. The survey consisted of the entire route of the Sewage Transmission Line, the distribution for reclaimed water, the alternate plant sites, the expansion area at Neary's Lagoon, the reservoir area near the Monterey Bay Academy, and the out-fill alignment. No evidence of cultural resources was identified.

S-012760

Jones & Stokes Associates (1991) conducted a records search and archaeological reconnaissance report in compliance with Section 106 as part of the preparation for the construction of a secondary wastewater treatment facility (City of Santa Cruz Public Works Department 1991). The project did not affect any archaeological resources.

S-048695

P.S. Preservation Services (1992) conducted a historic architectural survey report in compliance with Section 106 for the Wastewater Treatment Plant Modification Program for the WWTF. The survey included an inventory and

evaluation of 16 residential properties across from the proposed project, located on Bay Street, National Street, Columbia Street, and California Avenue. The report concluded that only four residences were 50 years or older at the time of survey and none were identified as eligible for listing in the NRHP.

S-052428

This study was for the Santa Cruz Rail Trail Segment 7 Project, which included a 2.1-mile, new paved bicycle and pedestrian trail at an existing rail line from Natural Bridges Drive to the west to Pacific Avenue to the east. The project ADI was adjacent to, but did not intersect, the existing SPRR. The project did not affect archaeological resources P-44-000085, P-44-000274 and P-44-000286 because the project occurred in areas previously graded by the railroad alignment. The California Department of Transportation provided a determination of a finding of no adverse effect (without standard conditions) for the undertaking.

5.1.2 Previously Identified Cultural Resources

The records search identified four previously recorded cultural resources mapped as intersecting or overlapping the ADI: P-44-000085, a precontact resource recorded along the southwest boundary of the Project ADI; P-44-000274, the Neary's Lagoon Complex; P-44-000377, a portion of the SPRR; and P-44-001254, the Santa Cruz Wastewater Treatment Facility campus. Additionally, 21 resources were identified within the 0.5-mile study buffer, which include three precontact resources, four multicomponent (precontact and historic-period) resources, and 14 historical-period cultural resources within the 0.5-mile study area buffer (Table 2).

Table 2. Previously Recorded Resources within the Project ADI and 0.5-mile Buffer

Primary	Trinomial/ Other ID	Description	Recording Events
Resources Intersecting the Project ADI			
P-44-000085	CA-SCR-0080; CC80	Precontact lithic scatter and habitation site.	1972 (Jean Stafford, Kim Fisher)
P-44-000274	CA-SCR-073/H; Neary's Lagoon Complex	Multicomponent site consists of a lithic scatter and historic debris.	1986 (Mark Holsapple, Joe Carroll, Cabrillo College)
P-44-000377	CA-SCR-0499H; Southern Pacific Railroad; SPRR	Railroad	1998 (Chris Morgan, Pacific Legacy); 1999 (A. Ruby (FW), S. Mikesell (JRP), Far Western, JRP Historical Consulting Services); 2014 (Toni Webb, Garret Root, JRP Historical Consulting, LLC); 2018 (Hannah Haas & Steven Treffers, Rincon Consultants, Inc); 2019 (John Schlagheck, Peter Von der Porten, Holman and Associates); 2019 (John Schlagheck, Holman and Associates); 2021 (Douglas Ross, Albion)
P-44-001254	Santa Cruz Wastewater Treatment Facility	Santa Cruz Wastewater Treatment Facility	2017 (Johanna Kahn, ESA)

Table 2. Previously Recorded Resources within the Project ADI and 0.5-mile Buffer

Primary	Trinomial/ Other ID	Description	Recording Events
Resources within the 0.5-mile Buffer			
P-44-000018	CA-SCR-0012; Beach Hill Site	Precontact habitation site	1950 (D.W. L., W.J. W., [none]); 1974 (Don Stafford, Jean Stafford, Starr Gurcke, [none]); 1974 (J. Stafford, San Jose State University); 1979 (George Atwood, [none]); 2018 (K. Taylor, R. Brady, Dudek); 2020 (S. Brewer, Dudek)
P-44-000091	CA-SCR-0087/H	Multicomponent site; precontact habitation and historic debris	1973 (Jean Stafford, Mary Eastman, Cabrillo College); 1974 (Starr Gurcke, Tracey Buckman, Cabrillo College); 1985 (L. Bourdeau, [none])
P-44-000097	CA-SCR-0093/H; Sunflower House	Multicomponent site; precontact habitation site, historic building; historic debris;	1974 (Allan Lonnberg, Cabrillo College); 1974 (S. Gurcke, Tracy Buckman, Cabrillo College); 1974 (S. Gurcke, Tracy Buckman, Cabrillo College); 1986 (L. Bourdeau); 2020 (S. Brewer, Dudek); 2022 (Stella D'oro, Albion Environmental); 2022 (Reilly Murphy, Albion Environmental, Inc.); 2023 (Stella D'oro, Albion Environmental)
P-44-000220	CA-SCR-0218H	Water conveyance; structures	1979 (Paul Rolmich)
P-44-000248	CA-SCR-0246H	Historic refuse, building	1981 (William Lee Cox Sulzner, Rob Edwards, Cabrillo College); 1981 (T. McGregor, Cabrillo College)
P-44-000271	CA-SCR-0269/H	Multicomponent site; precontact lithic scatter, historic refuse	1985 (Larry Bourdeau, [none])
P-44-000286	CA-SCR-0293/H	Multicomponent site; precontact habitation site; historic refuse	1991 (D. McGowan, S. Dondero, Jones & Stokes Associates)
P-44-000302	N/A	Precontact midden	1988 (C.R. Smith, G.S. Breschini, Archaeological Consulting)
P-44-000444	Pacific View Court	Historic building	2001 (Anthony Kirk, [none])
P-44-000767	N/A	Historic refuse	2013 (Rob Edwards, Charr Simpson-Smith, AACC)
P-44-000816	Golden Gate Villa	Historic building	1975 (Dannis L. Wardell, University of California, Santa Cruz); 1975 ([none], Charles Hall Page & Associates)

Table 2. Previously Recorded Resources within the Project ADI and 0.5-mile Buffer

Primary	Trinomial/ Other ID	Description	Recording Events
P-44-000939	Santa Cruz Downtown Historic District	Historic district	1989 (Cynthia Mathews, Jane Silberstein, Larry Pearson, Downtown Neighbors' Assoc., City of Santa Cruz Planning Department)
P-44-001080	Pauline Philleo House	Historic building	1992 (John W. Snyder, P.S. Preservation Services)
P-44-001081	Josephine Rockwood House	Historic building	1992 (John W. Snyder, P.S. Preservation Services)
P-44-001082	Campbell House	Historic building	1992 (John W. Snyder, P.S. Preservation Services)
P-44-001083	Cavanaugh House; Marco Carniglia House	Historic building	1992 (John W. Snyder, P.S. Preservation Services)
P-44-001236	Santa Cruz Municipal Wharf	Wharf/historic engineering structure	2011 (Corri Jimenez, URS Corporation); 2019 (Fallin Steffen, Dudek)
P-44-001270	ISO-01	Precontact isolate	2023 (S. Brewer, Dudek)
P-44-001294	Santa Cruz Railroad	Road; bridge; bridge depot	2022 (Kara Brunzell & Ynez Barber, Brunzell Historical)
P-44-001353	West Cliff Drive	Road	2024 (Fallin Steffen, Dudek)
P-44-001357	Albion Site-1	Historic building	2025 (Matt Manigault, Nicole Mathews, Albion Environmental. Inc.)

P-44-000085

Stafford and Fisher (1972) conducted an archaeological survey and recorded this precontact site, which they noted as “mostly destroyed”. They observed lithic material, fire-cracked rock, shell, and charcoal. Associated artifacts include light brown banded chert, grey basalt pebble core, brown and black banded chert, pismo and abalone shell fragments, shark tooth, quartzite chunk, and other lithic debris. Stafford and Fisher did not identify any burials, but they mentioned that burials have been identified less than a mile to the northwest. The resource has not been evaluated for eligibility for the NRHP or CRHR.

P-44-000274

This resource is also known as the Neary’s Lagoon Archaeological Site Complex. Holsapple and Carroll (1986) recorded this multicomponent resource which is made up of five concentrations of precontact material within a 49.3-acre area. The concentrations include lithic debitage and faunal remains (vertebrate and invertebrate) ranging from sparse to dense concentrations. At Concentration #1, identified associated artifacts include chert fragments, porcelain fragments, and a hammerstone (possibly granite). No other artifacts were described at the other concentrations. Holsapple and Carroll did not identify burials in their survey but mentioned that burials have been identified less than a mile to the northwest. The Neary’s Lagoon Archaeological Site complex has not been evaluated for the NRHP/CRHR.

P-44-000377

This resource is a portion of the Southern Pacific Railroad, Davenport Branch Line, also identified as the Coast Line Railway, or the Union Pacific Railroad. The railroad was originally constructed between 1905 and 1907 by the Coast Line Railway Company, a subsidiary of Southern Pacific Railroad. The line extended from Davenport toward Santa Cruz and was developed primarily to transport freight, especially cement from the Santa Cruz Portland Cement Company in Davenport. It was later operated by Southern Pacific and Union Pacific before being decommissioned in 2010.

The resource consists of a historic railroad structure including raised berms, ballast, ties, rail, earthen embankments, and trestle-related features. Several embankments were created by constructing wood trestles at creek crossings and then infilling them with earth, a distinctive early twentieth-century construction method. The segment was evaluated as appearing eligible for the National Register of Historic Places, California Register of Historical Resources, and as a Santa Cruz County landmark under Criteria A/1/2 and C/3/3 for its association with regional transportation and the cement industry, and for its distinctive railroad construction methods.

The resource record documents multiple recording and update events. Pacific Legacy initially recorded the railroad in 1998, followed by a 1999 documentation effort by Far Western and JRP Historical Consulting Services. JRP Historical Consulting, LLC recorded or updated the resource again in 2014. In 2018, Hannah Haas and Steven Treffers of Rincon Consultants intensively recorded and evaluated an approximately 7.4-mile segment of the Davenport Branch Line for the North Coast Rail Trail Project; they documented the alignment, berms, ballast, ties, rail, earthen trestle embankments, and associated crossings, and recommended the segment eligible for the NRHP, CRHR, and designation as a Santa Cruz County landmark (Treffers 2018). Holman and Associates completed two additional recording events in 2019, one by John Schlagheck and Peter Von der Porten and another by John Schlagheck. Douglas Ross of Albion recorded or updated the resource in 2021. The NWIC subsequently consolidated duplicate primary numbers P-44-000345 and P-44-001144 under P-44-000377 (NWIC 2019).

P-44-001254

The Santa Cruz Wastewater Treatment Facility is a campus of industrial buildings constructed in phases between 1948 and 2005; its extant buildings are primarily of reinforced-concrete construction. Johanna Kahn of ESA intensively recorded and evaluated the campus on February 17, 2017. ESA evaluated the historic-age buildings under NRHP Criteria A–D and CRHR Criteria 1–4 and recommended the facility ineligible for listing in both the NRHP and CRHR because it did not meet any significance criterion, although it retained a high degree of integrity (Kahn 2017). The complex was re-evaluated in 2026 and again found not to meet the eligibility criteria for the NRHP or CRHR (Dumovich Heywood et al. 2026).

6 Sacred Lands File Search and Native American Outreach

A Sacred Lands File (SLF) search and initial tribal outreach was conducted for the Project. The SLF search returned positive results. Dudek sent outreach letters to the tribal representatives on the list provided from the Native American Heritage Commission (NAHC) and received responses expressing interest in the Project, noting potential cultural sensitivity in the vicinity, and recommending consultation and/or tribal monitoring. The City, the lead agency responsible for Assembly Bill 52 (AB 52) consultation, initiated consultation with the Amah Mutsun Tribal Band (AMTB) and the Costanoan Rumsen Carmel Tribe (CRCT) which remains ongoing. Documentation of the Native American outreach to date is provided in Appendix B.

6.1 Sacred Lands File Search

Dudek requested a SLF search from the NAHC on January 6, 2026, for the proposed Project area and study area buffer. On January 6, 2026, NAHC responded with positive results for the SLF search and provided a list of six Native American contacts culturally affiliated with the Project area vicinity.

6.2 Native American Outreach

On March 10, 2026, Dudek initiated tribal outreach letters to the Amah Mutsun Tribal Band, the Amah Mutsun Tribal Band of Mission San Juan Bautista, Costanoan Ohlone Rumsen-Mutsun, Costanoan Rumsen Carmel, Indian Canyon Mutsun Band of Costanoan, and the Wuksachi Indian Tribe/Eschom Valley Band.

Dudek received three responses as a result of the outreach. Shelby Brown of the Amah Mutsun Tribal Band of Mission San Juan Bautista responded on March 11, 2026, that she is interested in the Project and would like more information. Chairman Patrick Orozco of the Costanoan Ohlone Rumsen-Mutsun Tribe responded on March 10, 2026, remembering a site on California Street and recommending Tribal monitoring during work activities. Chairwoman Kanyon Sayers-Roods responded on March 16, 2026, that the Project overlaps or is near a potentially eligible cultural site. Ms. Sayers-Roods also mentioned that she is interested in consulting and voicing her concerns, and that tribal monitoring may be recommended. Dudek forwarded the comments to the City. No other responses have been received to date.

6.3 AB 52 Consultation

On August 18, 2026, the City initiated Assembly Bill 52 (AB 52) consultation with the two consulting tribes, the Amah Mutsun Tribal Band (AMTB) and the Costanoan Rumsen Carmel Tribe (CRCT). Letters were sent both by email and certified mail. The City will continue consultation should any groups respond and will retain records of any such consultation.

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7 Site Reconnaissance

7.1 Methods

The Project is bounded by Neary's Lagoon Park and Wildlife Refuge to the north and east and the Southern Pacific Railroad (SPRR) alignment to the south and west. Most of the ADI is within the WWTF campus at a lower elevation adjacent to the refuge. Two small portions of the ADI, totaling less than 0.05 acre, are located on the higher bluff within La Barranca Park near Bay Street. Electrical conduit would extend from the WWTF through existing conduit beneath the SPRR alignment and connect to new service gear adjacent to Bay Street.

Dudek archaeologists conducted an intensive archaeological survey of the entire Project ADI. Brooke Crumpton surveyed the WWTF campus on January 26, 2026. Kolin Taylor surveyed the portions of the ADI south of the WWTF property on August 13, 2026, where trenching and infrastructure upgrades are proposed, and excavated two auger probes to test for subsurface archaeological deposits potentially associated with P-44-000085 or P-44-000274.

The pedestrian survey involved walking parallel transects spaced no more than 15 meters (approximately 50 feet) apart and carefully inspecting for precontact and historical-period cultural materials, topographic indicators, and soil characteristics that could indicate buried deposits. Where soil exposure was limited, a trowel was used to remove light vegetation and duff. The archaeologists looked for precontact indicators such as faunal remains, flaked stone tools and debitage, ground stone, fire-affected rock, shell beads, and bone tools, as well as historical-period materials such as ceramics, glass, metal refuse, and building or structural foundations.

Dudek excavated two 10-centimeter-diameter auger probes in 30-centimeter levels to a depth of 120 centimeters below ground surface and screened the soils through ¼-inch mesh. Auger 1 was placed east of the railroad within the previously mapped boundary of P-44-000085 near its mapped overlap with the ADI. Auger 2 was placed at the proposed service-gear location in La Barranca Park near the mapped boundary of P-44-000274 to test whether archaeological deposits associated with that resource extend into the ADI.

7.2 Results

Within the WWTF, the ADI consisted primarily of concrete, asphalt, buildings, equipment, maintained vegetation, and limited pockets of exposed soil, particularly near the overgrown slope extending north from Bay Street toward the main Project area. Exposed soils were generally highly disturbed and consisted of dark brown silty sand mixed with vegetation, angular and subangular imported gravel, construction debris, and modern refuse. Planters within the WWTF contained imported soil and grasses. Outside the WWTF campus, exposed soils consisted of light brown sandy loam with sedimentary-rock gravel.

The pedestrian survey and both auger probes were negative for archaeological materials. No precontact or historical-period cultural materials were identified during the survey, and neither auger probe encountered cultural deposits. Survey photographs are provided in Appendix C, the confidential survey-results map is provided in Appendix D, and the updated record for P-44-000085 is provided in Appendix E.

P-44-000085

The previously recorded boundary of P-44-000085 overlaps the southwesternmost portion of the Project ADI; however, this overlap appears to result from a mapping error. The 1972 site record describes the resource as confined to the upper bluff between Bay Street and the fence adjacent to the SPRR alignment. Railroad grading lowered the SPRR alignment by at least 10 feet, so any deposits formerly present within the cut would have been removed. Dudek revisited the bluff and observed no indicators of the site. Auger 1 was excavated east of the railroad within the northeastern portion of the previously mapped boundary, where that boundary overlapped the ADI. No cultural deposits were encountered. Dudek prepared an updated DPR site record showing the corrected boundary, which no longer overlaps the ADI (Appendix E).

P-44-000274

P-44-000274 is a 49.27-acre complex containing five concentrations of precontact archaeological materials, one of which also includes historical-period material. Although the mapped resource boundary overlaps the Project ADI, none of the recorded concentrations are within proposed disturbance areas. The surveyed portions of the ADI consisted predominantly of imported fill or disturbed soils, and no archaeological materials associated with this resource were identified during the survey or in Auger 2.

P-44-000377

No ground disturbance is proposed within P-44-000377 because the Project would use existing conduit beneath the railroad alignment.

P-44-001254

P-44-001254 encompasses the developed WWTF campus; its built-environment evaluation and field findings are documented in the separate built-environment inventory and evaluation report (Dumovich Heywood et al. 2026).

8 Eligibility and Effects Assessment

Dudek evaluated the records search, Native American outreach, pedestrian survey, auger testing, and separate built-environment evaluation to determine whether resources that qualify or may qualify as historical resources under CEQA or historic properties under Section 106 are present within the ADI. The analysis addresses the four resources mapped as intersecting or overlapping the ADI.

P-44-000085 is a previously recorded precontact archaeological resource that has not been formally evaluated for eligibility for the NRHP or CRHR. Dudek's review of the site record and field results indicates that its mapped overlap with the ADI resulted from a mapping error. The resource is confined to the bluff southwest of the SPRR alignment and does not intersect the ADI. No archaeological materials associated with the resource were identified during survey or auger testing. Dudek updated the site record to show the corrected boundary, which no longer intersects the ADI. An eligibility determination is not necessary for this Project because the resource is outside the ADI; therefore, the Project would not affect P-44-000085.

P-44-000274, the Neary's Lagoon Archaeological Site Complex, is a large multicomponent resource containing five recorded concentrations of precontact material, one of which also contains historical-period material. Although the resource has not been formally evaluated, Dudek recommends treating it as a historical resource under CEQA and assuming it eligible under NRHP Criterion D for purposes of this undertaking because it may contain intact deposits with information potential. The mapped resource boundary overlaps the ADI; however, none of the recorded concentrations or other potentially contributing elements are within proposed disturbance areas, and no archaeological materials associated with the resource were identified during survey or auger testing. Accordingly, the Project would not cause a substantial adverse change in the significance of P-44-000274 under CEQA and would not affect the resource for purposes of Section 106.

P-44-000377 is recommended eligible for the NRHP and CRHR. However, the Project would use existing conduit beneath the Southern Pacific Railroad alignment and would not alter the resource. Therefore, the Project would not cause a substantial adverse change under CEQA and would not affect P-44-000377 for purposes of Section 106.

P-44-001254, the Santa Cruz WWTF campus, was re-evaluated in a separate built-environment report (Dumovich Heywood et al. 2026) and was recommended not eligible for the NRHP, CRHR, or City of Santa Cruz Historic Resource Inventory. Accordingly, the WWTF campus is not a historic property under Section 106 or a historical resource under CEQA.

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9 Summary and Recommendations

9.1 Summary

Dudek conducted an archaeological inventory for the City of Santa Cruz WWTF Energy and Electric Resiliency Project to support CEQA and Section 106 review associated with potential CWSRF funding. The Project would modernize electrical distribution and standby power systems primarily within the developed WWTF campus, with limited work in La Barranta Park and use of existing conduit beneath the SPRR alignment.

Identification efforts included a CHRIS records search through the NWIC, Sacred Lands File search, Native American outreach, initiation of AB 52 consultation, pedestrian survey, and excavation of two auger probes. The survey and both auger probes were negative for archaeological materials. Four resources were mapped as intersecting or overlapping the ADI: P-44-000085, P-44-000274, P-44-000377, and P-44-001254. Dudek determined that P-44-000085 was incorrectly mapped and does not intersect the ADI; P-44-000274 overlaps the ADI, but no recorded concentrations, contributing elements, or cultural deposits were identified within proposed work areas; P-44-000377 is recommended eligible for the NRHP and CRHR but would not be affected because the Project would use existing conduit beneath the railroad alignment; and P-44-001254 was recommended not eligible for the NRHP, CRHR, or City of Santa Cruz Historic Resource Inventory in a separate built-environment evaluation (Dumovich Heywood et al. 2026).

9.2 Recommendations

Based on the identification and effects assessment, Dudek recommends that the Project would not cause a substantial adverse change in the significance of a historical resource under CEQA or a historic property under Section 106 of the NHPA. P-44-000085 is outside the ADI; no contributing elements or deposits associated with P-44-000274 were identified within proposed disturbance areas; P-44-000377 would be avoided through use of existing conduit beneath the railroad alignment; and P-44-001254 is not eligible for the NRHP, CRHR, or City of Santa Cruz Historic Resource Inventory. For Section 106, Dudek supports a finding of no historic properties affected.

Recommended conditions include cultural resources Worker Environmental Awareness Training and inadvertent-discovery procedures for cultural resources and human remains. The Project should also implement any additional measures established through ongoing tribal consultation, including tribal monitoring if required.

9.2.1 Worker Environmental Awareness Training

Dudek recommends cultural resources Worker Environmental Awareness Training for all personnel involved in ground-disturbing work. Training should be completed before personnel begin such work and should summarize the cultural sensitivity of the Project vicinity, types of archaeological materials that could be encountered, confidentiality requirements for cultural resource locations, stop-work procedures, and notification protocols. The City or its contractor should document attendance and each participant's acknowledgment of the stop-work and notification procedures.

9.2.2 Inadvertent Discovery Protocols for Cultural Resources and Human Remains

If cultural resources are encountered during Project implementation, the contractor shall immediately stop work within a reasonable distance sufficient to protect the discovery, initially 50 feet unless adjusted by a qualified archaeologist, and notify the City and qualified archaeologist. The archaeologist shall evaluate the discovery and recommend appropriate treatment. Work within the protected area may resume only after the City, in consultation with the qualified archaeologist, authorizes it. If human remains are discovered, all work shall cease in the vicinity, the remains and associated materials shall be protected from further disturbance, and the Santa Cruz County Coroner shall be notified in accordance with California Health and Safety Code Section 7050.5. If the coroner determines that the remains are Native American, the coroner shall notify the Native American Heritage Commission, and the procedures in Public Resources Code Section 5097.98, including consultation with the Most Likely Descendant, shall be followed.

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Appendix A

Records Search

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Appendix B

Tribal Outreach

Redacted

Appendix C

Survey Photos



Image 001. Electrical and power, view west



Image 002. Photo Description, view northwest.



Image 003. Overview southern boundary of Project area, view northwest.

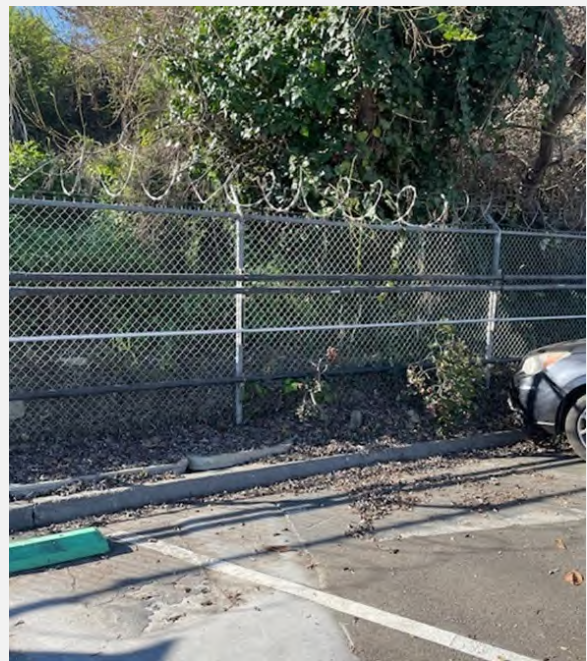


Image 004. General overview of types of exposed soils and vegetation within Project area, view west.



Image 005. Primary Sedimentation Structure, view north.



Image 006. Exposed soils, view north.



Image 007. Exposed soils, north of P-44-000085, view southwest.

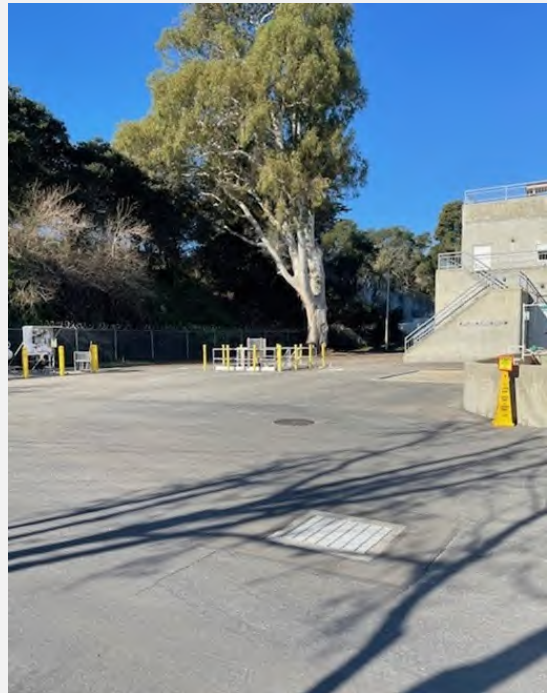


Image 008. Overview showing large areas of concrete, cement, view west.



Image 009 Clay fragments found in exposed soils from clay sewer pipes, plan view.



Image 010. The Trickling Filters 1-6, backside, view southeast.



Image 011. The Trickling Filters 1-6, soils from work, view southeast.



Image 012. Old sewer drains coming from Bay Street, view west.



Image 013. Exposed soils at northern boundary of P-44-000085, view south, southwest.



Image 014. Exposed soils at northern boundary of P-44-000085, view east.



Image 015. Hillside looking towards P-44-000085, view west.

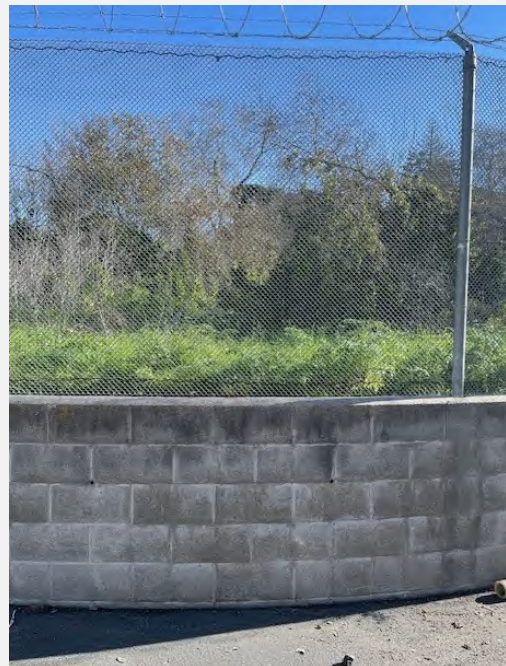


Image 016. Overview of eastern boundary, view east.



Photo Number 017. Digester, view north.



Photo Number 018. Digester, view north.



Photo Number 019. Along SPRR, where P-44-000085 is mapped, view north.



Photo Number 020. Along Bay Street, where the site P-44-000085 is mapped, view east.



Photo Number 021. Overview of Project from SPRR, view east.



Photo Number 022. Overview of Project, view west.



Photo Number 023. Auger 1 Overview. View west.



Photo Number 024. Auger 2 Overview. View northwest.

Appendix D

Confidential Archaeological Survey Results

Redacted

Appendix E

DPR Update P-44-000085

Redacted

Appendix D

Built Environment Inventory and Evaluation Report

Built Environment Inventory and Evaluation Report

Wastewater Treatment Facility Upgrades Project, City of Santa Cruz, California

OCTOBER 2026

Prepared for:

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Team Support: Nathan Reid, GIS Analyst, and Rachel Strobridge, GIS Analyst, managed the geographic information system data and created the figures in the report. Lia Kershaw, Technical Editor, provided technical editing for the report.

Intended Use: This report is intended for the Client's and its representatives' exclusive use. Based on the results of Dudek's investigation, it contains professional conclusions and recommendations concerning the potential for project-related impacts to cultural resources. It should not be considered to constitute project clearance with regard to the treatment of cultural resources or permission to proceed with the project described in lieu of review by the appropriate reviewing or permitting agency. This report should be submitted to the appropriate federal, state, and local review agencies for their comments prior to the commencement of the project.

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Executive Summary

The City of Santa Cruz Public Works Department retained Dudek to prepare a Built Environment Inventory and Evaluation Report for the proposed Wastewater Energy and Electrical Resiliency (WEER) Project (project) in Santa Cruz County, California. The project is located at the City's Wastewater Treatment Facility (WWTF) at 110 California Street in the City of Santa Cruz, California (Figure 1, Project Location). The project proposes to modernize and replace electrical infrastructure that is beyond the expected life expectancy at the WWTF and to improve electrical system reliability, resiliency, operational flexibility, worker safety, and emergency preparedness in support of the overall long-term operations of the facility. The project includes demolition of the existing maintenance building (constructed in 1968–1982 and expanded in 1988), which will be replaced with a new 2,000 square foot main metal framed electrical building. The project also includes replacement of the WWTF's deteriorated underground electrical distribution lines, completion of a redundant, facility-wide electrical loop, replacement and consolidation of substations, transformers, and switchgear; installation of a new centralized standby power generation system, and upgrades to electrical equipment serving treatment processes such as interstage pumps and aeration blowers. The project would also replace obsolete medium-voltage equipment with modern electrical systems, incorporate upgraded controls and variable-frequency drives to improve operational efficiency, and provide infrastructure capable of supporting long-term WWTF operations. Two 400 kW and one 1000 kW existing standby generators will be removed and replaced with one generator with approximately 2.5 MW capacity with a Tier 4 engine or equivalent.

This report documents Dudek's efforts to identify and evaluate built environment resources consistent with the requirements of the California Environmental Quality Act (CEQA). These efforts included a records search of the California Historical Resources Information System, the development of an area of potential impacts (API), an intensive-level survey of the API for built environment resources of historic age (45 years of age or older), WWTF development and archival research, the creation of an appropriate historic context, and recordation and evaluation of historic-era properties located in the API under National Register of Historic Places (NRHP), California Register of Historical Resources (CRHR), and City of Santa Cruz Historic Resource Inventory (CSCHRI) designation criteria.

Dudek personnel conducted an intensive-level pedestrian survey for built environment resources within the API on January 30, 2026. Dudek recorded and evaluated one historic-era property located within the API, the Santa Cruz WWTF, constructed in 1948. Areas of the WWTF were previously recorded and evaluated in 2017 by ESA and it was recommended as not meeting any of the significance criteria of the NRHP or CRHR. ESA did not include an evaluation under CSCHRI criteria. This previous evaluation received concurrence on August 28, 2020, from the California State Office of Historic Preservation (commonly referred to as SHPO) (Ref # EPA_2020_0731_001). Since 2017, several previously unevaluated plant components have reached the 45-year threshold for historic consideration. As part of this report, Dudek prepared an updated NRHP/CRHR evaluation addressing those property elements that were not recorded and evaluated in 2017 by ESA. Additionally, the updated evaluation also applied CSCHRI criteria. Dudek agrees with the 2017 NRHP/CRHR evaluation that the property is not eligible for listing and found that the property also does not meet CSCHRI criteria. In summary, the WWTF, the only built environment property within the API, is not considered a historic resource under CEQA and is not eligible for the NRHP, CRHR, and CSCHRI. No further work for built environment cultural resources is necessary prior to the proposed project implementation.

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
ACHP	Advisory Council on Historic Preservation
API	area of potential impacts
APN	Assessor's Parcel Number
BERD	Built Environment Resource Directory
c.	circa
CCR	California Code of Regulations
CCWQCP	Central Coastal Water Quality Control Plan
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CHRIS	California Historical Resources Information System
City	City of Santa Cruz
County	County of Santa Cruz
CRHR	California Register of Historical Resources
CSCHRI	City of Santa Cruz Historic Resource Inventory
CWEA	California Wastewater Environment Association
DAFT	Dissolved Air Flotation Thickener
DPR	Department of Parks and Recreation
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
MW	megawatt
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
NWIC	Northwest Information Center
OHP	Office of Historic Preservation
PRC	Public Resources Code
project	Wastewater Treatment Facility Upgrades Project
SHPO	State Historic Preservation Officer
SPRR	Southern Pacific Railroad
UC	University of California
UV	ultraviolet
WWTF	Wastewater Treatment Facility

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1 Introduction

This Built Environment Inventory and Evaluation Report documents the identification and evaluation of built environment cultural resources within or adjacent to the proposed Wastewater Energy and Electrical Resiliency (WEER) (project) that may require additional analysis for compliance under the California Environmental Quality Act (CEQA). This report includes the following components: (1) an introduction including project location, description, the regulatory context, and the area of potential impacts (API); (2) background research, which includes a focused records search review of previously recorded built environment resources included in the California Historical Resources Information System (CHRIS), a review of historical maps and aerial photographs; and the field methodology and the intensive-level survey of the API; (3) the development of an applicable historic context for the project area; (4) an evaluation of significance for all resources within the API; (5) findings and conclusions; and (6) references cited.

1.1 Project Location

The Project is located within the existing City of Santa Cruz Wastewater Treatment Facility (WWTF) at 110 California Street in the City of Santa Cruz, California, consisting of five parcels (Assessor's Parcel Numbers [APNs]): 004-331-02, 004-331-03, 004-331-05, 004-331-06, and 004-331-08 (see Figure 1 and Figure 2). The WWTF is adjacent to La Barranca Park to the south and Neary Lagoon Park and Wildlife Refuge to the north. Surrounding areas are residential neighborhoods along Bay Street and California Street with the Southern Pacific Railroad (SPRR) and Coastal Rail Trail running southwest of the facility. The majority of the work will take place within the developed footprint of the WWTF.

1.2 Project Description

The City of Santa Cruz has been treating sewage at the WWTF next to the Neary Lagoon Park and Wildlife Refuge since 1928. The facility has been expanded several times to accommodate City growth and flows from the Santa Cruz County Sanitation District. Today the WWTF serves approximately 145,000 residents, with a rated dry weather design capacity of 17 million gallons per day (MGD), an average daily flow of less than 10 MGD, and a wet weather design capacity of 81 MGD.

The objectives of the project are to modernize and replace electrical infrastructure that is beyond the expected life expectancy at the WWTF and to improve electrical system reliability, resiliency, operational flexibility, worker safety, and emergency preparedness in support of the overall long-term operations of the facility (Brown and Caldwell 2026a). Most of the electrical distribution systems at the facility were installed in the 1980's and 1990's. While the equipment has been diligently maintained, it has exceeded its useful life and creates operational and maintenance challenges. Replacements and upgrades are needed to improve reliability, safety, maintainability and alignment with current standards to establish a 30-to-40-year service lifespan. Project components are further described below.

1.2.1 Project Components

The project includes replacement of deteriorated underground electrical distribution lines, completion of a redundant facility-wide electrical loop, replacement and consolidation of substations, transformers, and switchgear, demolition of the existing maintenance building, construction of a new main electrical building, installation of a new centralized standby power generation system, and upgrades to electrical equipment serving treatment processes such as interstage pumps and aeration blowers. The project would also replace obsolete medium-voltage equipment with modern electrical systems, incorporate upgraded controls and variable-frequency drives to improve operational efficiency, and provide infrastructure capable of supporting long-term WWTF operations.

1.2.1.1 Electrical Distribution System Modernization

The project would replace aging 21-kV electrical distribution equipment and construct a fully redundant A/B loop electrical distribution system throughout the WWTF. Existing underground conduit systems, duct banks, manholes, handholes, and utility corridors would be reused where feasible. New underground conduits and conductors would be installed where necessary to replace obsolete infrastructure and complete gaps in the existing electrical loop. As part of the electrical system upgrades, an approximately 625-foot-long duct bank will be excavated along the perimeter of the WWTF. Dimensions of the duct bank trenches are approximately 3 feet wide and up to 6 feet deep within the existing footprint of the WWTF. The trenching footprint near Sub-station 3A/3B may require adjustment of the proposed alignment depending on subsurface conditions. Electric cable and other equipment would be installed within the excavated duct bank footprint and tie into the PG&E switchgear through existing conduits adjacent to Bay Street following construction.

1.2.1.2 Substation and Equipment Replacement

Eight existing substations, transformers, switchgear, protective equipment, and related infrastructure would be replaced throughout the WWTF. Prior to excavation activities and installation of new equipment, existing gear and equipment will be removed back to a safe junction point. Where possible, removed equipment and materials will be disassembled and reused or recycled. Existing liquid-filled transformers at the substations will be removed, drained and salvaged or recycled. The mineral oil drained from the transformers will be disposed of at an appropriate landfill. None of the transformers contain polychlorinated biphenyls (PCBs) as they were installed after the manufacturing ban on their use in the United States. Placement of the new substations and associated equipment would require minor excavation within the existing substation footprints. Excavation depths will vary from 2 feet to 6 feet depending on conditions. Equipment removal and replacement would largely occur within existing developed equipment areas, existing substations, and adjacent hard-scape areas. Proposed work at Sub-station 3A/3B may require trimming of one large eucalyptus tree in order to access the area for placement of the foundation for the new equipment. All WWTF processes would remain operational through phased installation and temporary power systems.

1.2.1.3 Main Electrical Building Replacement and Emergency Power Improvements

The existing maintenance building would be demolished and replaced with a new approximately 2,000 square foot main metal framed electrical building. Demolition would include utility disconnections, hazardous materials abatement as necessary, structure removal, foundation removal, and utility relocation. The new building would be

approximately 13 feet high at the roof peak and contain primary switchgear, communications equipment, battery systems, fire suppression systems, heating and cooling equipment, and facility storage. Associated improvements would include foundation installation, utility connections, security features, drainage improvements, and equipment pads. The new building foundation is currently assumed to be approximately 3 feet above grade to account for future sea level rise and enhance the long-term resilience of the WWTF critical electric infrastructure (Brown and Caldwell 2026a).

The project would replace existing standby power systems with a centralized backup generation system capable of supporting WWTF operations during utility outages. Improvements would include removal of two 400 kW and one 1000 kW existing standby generators and installation of a new standby generator, transformers, electrical equipment, fuel storage systems, exhaust systems, and protective equipment. A new approximately 2.5 MW standby diesel generator with a Tier 4 engine or equivalent will be installed within the footprint of the demolished maintenance building in a separate metal enclosure measuring approximately 45 feet long by 12 feet wide and 22 feet high. The enclosure will also have an approximately 24-diameter exhaust stack extending approximately 6 feet above the roof. The new standby generator will contain approximately 4,000 gallons of fuel (24 hours' worth) and only operate when utility power is lost or during routine testing and maintenance. Runtime of the generator will be limited to Monterey Bay Air Resource District (MBARD) permit requirements.

1.2.1.4 Pump, Blower and Control System Improvements

The project would replace and upgrade electrical systems serving pumps and aeration blowers. Existing medium-voltage motors would be replaced with modern equipment and connected to new variable-frequency drives and control systems. New control equipment would improve energy efficiency, operational flexibility, and process reliability. Improvements would occur within existing treatment process areas and would not change the treatment capacity or treatment processes conducted at the WWTF.

1.2.1.5 Construction

The following describes construction aspects relevant to the different project elements.

1.2.1.5.1 Underground Utilities, Trenching, and Excavation

Construction of some upgrade elements would include utility locating, potholing, trenching, excavation, conduit installation, cable placement, backfilling, paving restoration, and site restoration. Due to the existing dense network of electrical duct backs, piping and other infrastructure, utility investigations will be performed using records review, field surveys, utility marking, potholing, and other subsurface utility engineering methods, prior to excavation activities. Excavation and trenching will be conducted using typical methods using a backhoe, hydroexcavation, potholing or hand techniques. Overall excavation volumes are estimated to be approximately 1,230 cubic yards for all aspects of the project. Where feasible, excavated material will be reused as backfill and compacted back into place. Construction grading and excavation activities would comply with applicable City requirements and erosion and sediment control best management practices (BMPs) to minimize erosion and sediment transport.

The segment of the SPRR shall be avoided during all phases of project implementation. The project would utilize existing conduit beneath the SPRR and would not require subsurface disturbance, trenching, or modifications to the railroad embankment/bed, track structure, or associated features. Temporary fencing or flagging shall be installed, as needed, to identify the railroad right-of-way and establish a buffer around the historic resource.

Construction staging, equipment access, material storage, and other project-related activities shall occur outside the designated avoidance area. These measures would ensure that no inadvertent damage occurs to character-defining features of the SPRR segment.

1.2.1.5.2 Temporary Facilities and Utility Bypasses

Temporary power systems, generator connections, bypass electrical systems, temporary feeders, and temporary utility connections would be required at various stages of construction to maintain uninterrupted WWTF operations. Temporary facilities would generally be located within developed portions of the WWTF and removed following project completion.

1.2.1.5.3 Dewatering

Dewatering during excavation activities may be needed depending on site conditions at the time of construction. Where groundwater is encountered, the work site will be isolated, and sump-pumps will be installed. Water will be pumped into baker tanks for settling. Water will be drained out of the tanks via metered hose into the sanitary sewer system. All applicable water Best Management Practices (BMPs) will be implemented during dewatering activities.

1.2.1.5.4 Construction Equipment, Staging, Workforce, and Activities

Construction activities would include demolition, excavation, grading, trenching, utility relocation, concrete placement, structural construction, equipment installation, crane operations, paving repair, testing, and commissioning. Equipment may include excavators, backhoes, loaders, cranes, forklifts, boom lifts, demolition hammers, trench compactors, paving equipment, dump trucks, delivery vehicles, and specialty electrical installation equipment. Access to and from the project area would be via public roads and the main facility roadway off of California Street. No public street closures will be required. If needed, a detailed Traffic Control Plan will be developed by the contractor for traffic management during construction. Staging and worker parking will be mostly within the WWTF facility and may include parking at a city owned parking spaces immediately adjacent if needed. Daily workforce levels would range from 15 to 25 workers and vary by construction phase, with peak staffing occurring during major infrastructure installation activities. Work hours will be between 8:00 AM and 5:00 PM on weekdays. Weekend or evening work is not anticipated but could occur occasionally for specific time-sensitive construction activities with approval from the City.

1.2.1.5.5 Construction Schedule and Post Construction Operations

Project implementation is anticipated to span approximately 28 to 36 months including final design, equipment procurement, demolition, construction, testing, and commissioning. Early activities would include utility investigations, conduit inspections, potholing, hazardous materials abatement, and procurement of long-lead electrical equipment. Construction steps would involve the following: demolition of the maintenance building, construction of the new electrical building, and phased replacement of substations, generators, underground electrical infrastructure, and process-support electrical systems. New systems would be tested and commissioned before existing systems are removed from service, if appropriate. During and following construction, the WWTF would continue operating as an existing wastewater treatment facility. The project would not increase treatment capacity or expand service areas.

1.3 Regulatory Setting

While the project as currently planned is subject only to state and local regulatory conditions, federal regulations are also provided here for reference should they be relevant in the future. The following sections provide a brief overview of the federal and state regulatory framework that historic properties and historical resources are identified and evaluated.

1.3.1 Federal

National Historic Preservation Act (54 USC § 300101 et seq., including Section 106 of the NHPA, 54 USC § 306108)

The National Historic Preservation Act (NHPA) established the National Register of Historic Places (NRHP) and the Advisory Council on Historic Preservation (ACHP). Under the NHPA, significant cultural resources are referred to as historic properties, which include any prehistoric or historic district, site, building, structure, or object included in, or determined eligible for inclusion in, the NRHP. Historic properties that are designated by the Secretary of the Interior to be National Historic Landmarks are nationally significant historic places that possess exceptional value or quality in illustrating or interpreting the heritage of the United States. A property is considered historically significant if it meets one of the NRHP criteria and retains sufficient historic integrity to convey its significance.

Implementing Regulations for Section 106 of the NHPA (36 CFR Part 800)

Section 106 of the NHPA (Section 106) requires federal agencies to take into account the effects of their undertakings on historic properties. The Section 106 process consists of four principal steps: (1) initiation of the Section 106 process, which includes identifying and initiating consultation with Native American tribes, local governments, and other interested parties; (2) identification of historic properties; (3) assessment of adverse effects; and 4) delineation of stipulations to resolve adverse effects in an agreement document.

Section 106 affords the ACHP and the State Historic Preservation Officer (SHPO), as well as other consulting parties, a reasonable opportunity to comment on any project that would adversely affect historic properties. The ACHP is an independent administering agency that develops procedures at the federal level to protect cultural resources included in, or eligible for inclusion in, the NRHP. The SHPOs administer the national historic preservation program at the state level, in addition to reviewing NRHP nominations, maintaining data on historic properties, and consulting with federal agencies during the Section 106 review.

The NRHP criteria for evaluation (36 CFR Section 60.4) considers the quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that:

- A. Are associated with events that have made a significant contribution to the broad patterns of our history; or
- B. Are associated with the lives of persons significant in our past; or
- C. Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D. Have yielded or may be likely to yield, information important in prehistory or history.

To be listed in the NRHP, a property must not only be shown to be significant under the NRHP criteria, but it also must have integrity. Integrity is the ability of a property to convey its significance. Because the concept of integrity is based on significance, the assessment of a property's integrity can only proceed after its significance has been fully established. In addition to meeting at least one of the significance criteria discussed above, the assessment of integrity requires consideration under the following seven aspects or qualities: location, design, materials, workmanship, setting, feeling, and association. To retain integrity, a property will always possess several, and generally most, of these aspects (NPS 1997: 44).

Certain properties are not typically considered for listing in the NRHP: religious properties, moved properties, birthplaces and graves, cemeteries, reconstructed properties, commemorative properties, and properties achieving significance within the past 50 years. These properties may be eligible for listing in the NRHP if the property meets one of the four criteria listed above and if the property also meets the appropriate Criteria Consideration for the property.

National Environmental Policy Act, as amended (42 USC § 4321 et seq.)

The National Environmental Policy Act (NEPA), as amended, establishes the federal government's policy for protecting important historic, cultural, and natural aspects of our national heritage during the planning for federal projects. All federal or federally assisted projects requiring action pursuant to Section 102 of NEPA must take into account the effects of those projects on cultural resources. In considering whether an action may "significantly affect the quality of the human environment," NEPA requires federal agencies to consider the degree to which their actions may affect districts, sites, highways, structures, or objects listed in or eligible for listing in the NRHP.¹ While NEPA and NHPA have independent statutory obligations, integrating their processes can streamline environmental reviews and ensure that cultural resources are adequately considered during federal project planning. When Section 106 of the NHPA and NEPA are integrated, project impacts that cause adverse effects under Section 106 are described in the NEPA document.

1.3.2 State

California Environmental Quality Act (PRC § 21083.2) and CEQA Guidelines (14 CCR § 15064.5)

CEQA requires that the lead agency consider the impacts of a project on historical resources. California Public Resources Code (PRC) Section 21084.1 defines historical resources as those listed, or eligible for listing, in the California Register of Historical Resources (CRHR), or those officially designated or recognized as historically significant by a local government pursuant to a local county or city ordinance or jurisdiction, unless the preponderance of the evidence demonstrates that the resource is not historically or culturally significant. Historical resources also include "historic properties" in California that are listed, or determined eligible for listing, in the NRHP and CRHR. The CEQA Guidelines provide specific guidance for determining the significance of impacts on

¹ For projects implemented prior to April 11, 2025, the Council on Environmental Quality (CEQ) advises that federal agencies "should consider voluntarily relying on its rescinded regulations at 40 CFR parts 1500-1508 to complete ongoing NEPA reviews or to defend against challenges to reviews completed while those regulations were in effect." For projects that are approved and implemented after April 11, 2025, the CEQ advises that "federal agencies must revise or establish their NEPA implementing procedures (or establish such procedures if they do not yet have any) to expedite permitting approvals and for consistency with NEPA as amended by the Fiscal Responsibility Act of 2023, including the deadlines established in NEPA" (Council on Environmental Quality, "Memorandum for Heads of Federal Departments and Agencies." February 19, 2025, 1-2).

historical resources. As described in in Section 15064.5(b) of the CEQA Guidelines, a “project with an effect 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.”

- A substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired (Section 15064.5[b][1]).
- The significance of an historical resource is materially impaired when a project:
 - Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the CRHR (Section 15064.5[b][2][A]); or
 - Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1[k] of the PRC or its identification in an historical resources survey meeting the requirements of section 5024.1[g] of the PRC, unless the public agency reviewing the effects of the project establishes by a preponderance of the evidence that the resource is not historically or culturally significant (Section 15064.5[b][2][B]); or
 - Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historic significance and that justify its inclusion in the CRHR as determined by a lead agency for purposes of CEQA (Section 15064.5[b][2][B]).

The CEQA Guidelines also provide guidance on minimizing or avoiding significant adverse impacts on historical resources as outlined in the following provisions of Section 15064.5(b)(3)-(5).

- Generally, a project that follows the Secretary of the Interior’s Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings or the Secretary of the Interior’s Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (1995), Weeks and Grimmer, shall be considered as mitigated to a level of less than a significant impact on the historical resource (Section 15064.5[b][3]).
- A lead agency shall identify potentially feasible measures to mitigate significant adverse changes in the significance of an historical resource. The lead agency shall ensure that any adopted measures to mitigate or avoid significant adverse changes are fully enforceable through permit conditions, agreements, or other measures (Section 15064.5[b][4]).
- When a project will affect state-owned historical resources, as described in PRC Section 5024, and the lead agency is a state agency, the lead agency shall consult with the SHPO as provided in PRC Section 5024.5. Consultation should be coordinated in a timely fashion with the preparation of the environmental documents (Section 15064.5[b][5]).

California Register of Historical Resources (PRC § 5024.1 and 14 CCR § 4850)

PRC Section 5024.1 establishes the CRHR, which lists all significant resources in California that are considered to be historical resources. In California, the term “historical resource” includes, but is not limited to, “any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California” (PRC Section 5020.1[j]). In 1992, the California legislature established the CRHR “to be used by state and local agencies, private groups, and citizens to identify the state’s historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change” (PRC Section 5024.1[a]). The criteria for listing resources in the CRHR were expressly developed to be in accordance with previously established criteria developed for listing in the NRHP. As such, a resource is considered historically significant if it meets at least one of the following criteria outlined under PRC Section 5024.1(c):

1. Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage.
2. Is associated with the lives of persons important in our past.
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
4. Has yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting one of the significance criteria described in PRC Section 5024.1(c), a resource must also possess sufficient integrity to qualify for listing in the CRHR. Integrity as defined in 14 California Code of Regulations (CCR) Section 4852(c) as “the authenticity of an historical resource’s physical identity evidenced by the survival of characteristics that existed during the resource’s period of significance” as evaluated with regard to the resource’s retention of location, design, setting, materials, workmanship, feeling, and association. Historical resources that lack sufficient integrity to meet the criteria for listing in the NRHP may still be eligible for listing in the CRHR if they have the potential to yield significant scientific, historical information, specific data.

The CRHR’s special considerations for certain property types are limited to moved buildings, structures or objects; historical resources achieving significance within the past 50 years; and reconstructed buildings.

The CRHR includes not only listed prehistoric and historic cultural resources but also resources that are identified through local historical resource surveys or designated under local ordinances provided the survey and ordinance meet the criteria in 14 CCR Section 4852(e) and (f).

1.3.3 Local Regulations

Santa Cruz City Historic Building Survey

Cultural landmarks in the City are termed Historic Landmarks and are under the aegis of the Planning and Community Development Department of the City of Santa Cruz. The City maintains a list of Historic Landmarks, as well as other built historic resources, in the Historic Building Survey. Historic Landmark is defined in Part 5: Historic Preservation within the Community Design Chapter, as “an individual structure or other feature, or group of structures on a single lot or site, or a site having special aesthetic, cultural, architectural, or engineering interest or value of an historical nature as a ‘landmark’” (Municipal Code Section 24.12.420, amended by Ordinance No. 2003-14, effective April 22, 2003).

In order to become a Historic Landmark, or to be placed on the Historic Building Survey, a property must first be evaluated for local historic significance based on the following criteria (Municipal Code Section 24.12.440, amended by Ordinance No. 2003-14, effective April 22, 2003):

c. The property is either a building, site, or object that is:

1. Recognized as a significant example of the cultural, natural, archaeological, or built heritage of the city, state, or nation
2. Associated with a significant local, state, or national event
3. Associated with a person or persons who significantly contributed to the development of the city, state, or nation
4. Associated with an architect, designer, or builder whose work has influenced the development of the city, state, or nation
5. Recognized as possessing special aesthetic merit or value as a building with quality of architecture and that retains sufficient features showing its architectural significance
6. Recognized as possessing distinctive stylistic characteristics or workmanship significant for the study of a period, method of construction, or use of native materials
7. Retains sufficient integrity to accurately convey its significance

The district is:

1. Recognized as a geographically definable area possessing a significant concentration of buildings that are well designed and other structures, sites, and objects which are united by past events or by a plan or physical development
2. Recognized as an established and geographically definable neighborhood united by culture, architectural styles or physical development

Santa Cruz City Historic Districts

The City recognizes two historic districts and several potential historic districts. A City Historic District is evaluated and defined by the following criteria (Municipal Code Section 24.06.120, amended by Ordinance No. 85-05, effective 1985):

1. The proposed historic district is a geographically definable area possessing a significant concentration or continuity of sites, buildings, structures, or objects unified by past events, or aesthetically by plan or physical development
2. The collective value of the historic district taken together may be greater than the value of each individual structure
3. The proposed designation is in conformance with the purpose of the city's historic preservation provisions, set forth in Section 24.12.400 of this title and the city's Historic Preservation Plan and the General Plan.

Historic Property Zoning Incentives Ordinance

As described by the City of Santa Cruz Department of Planning and Community Development, the Historic Property Zoning Incentive Ordinance (Ord. No. 2012-19) was adopted in December 2012 to expand existing zoning variations for use by individual buildings or properties listed on the Historic Building Survey or contributing buildings or properties situated within a recognized City Historic District. The ordinance permits several Variations to Development Standards to benefit previously listed properties and incentivize owners of eligible, unlisted properties to participate in local historic preservation efforts. Additionally, these Variations to Development Standards help to ensure that new construction and alterations to existing historic properties within these areas conform to standards that will maintain the integrity of the City's historic landmarks, buildings, sites, objects, and contributing buildings within designated and recognized districts.

Historic Alteration and Demolition Permits

Regarding effects on federal and locally significant properties, the Santa Cruz Municipal Code states the following:

Historic Alteration Permit: The purpose of this permit is to ensure that new construction and alterations are allowed in a manner which retains the integrity of the city's historic landmarks, buildings, sites and districts over time. Administrative historic alteration permits may be approved by the zoning administrator, without a public hearing, for minor alteration projects and accessory structures. Historic alteration permits may be approved by the city historic preservation commission, after a public hearing, for non-minor alteration projects. Such a permit is required before any person shall carry out or cause to be carried out, on the site of a designated landmark, or on the site of a building listed in the City of Santa Cruz Historic Building Survey, or on the site of a structure in an historic overlay district, any material change in exterior appearance of any such site or structure through alteration, construction or relocation. This section of the Zoning Ordinance is also part of the Local Coastal Implementation Plan (Section 24.08.900).

Historic Demolition Permit: The purpose of this permit is to ensure that no person shall demolish or cause to be demolished any building listed on the Santa Cruz Historic Building Survey, any designated historic landmark or any building in an historic overlay district without approval of an historic demolition permit (Section 24.08.1000).

1.4 Area of Potential Impacts

The API is the study area delineated to assess potential impacts from the construction and operation of the project on historic built environment resources (presented in Figure 2, Built Environment Area of Potential Impacts). The API for built environment resources encompasses the geographic area or areas within which the project may directly or indirectly cause a substantial adverse change in the significance of a known or unknown built environment historical resource. A substantial adverse change in the significance of a historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the resource is materially impaired (14 CCR Section 15064.5[b][1]). Under CEQA, material impairment of a historical resource is considered a significant impact (or effect), which can be direct, indirect, or cumulative.²

² As used in the CEQA Guidelines and 14 CCR Section 15358, the terms "effects" and "impacts" are synonymous in this report.

A direct or primary effect on a historical resource is one that is caused by the project and occurs at the same time and place (14 CCR Section 15358[a][1]). Examples of direct effects that are caused by, and immediately related to, the project include, but are not limited to, demolition, destruction, relocation, and alteration of a historical resource as a result of ground disturbance and other construction activities. Direct effects, however, are not limited to physical effects and, in certain circumstances, can be visual, vibratory, auditory, or atmospheric in nature if the effect is immediate and it results in the material impairment of the significance of a historical resource. Visual intrusions within the viewshed of a historical resource, for example, could result in the material impairment of the resource's integrity of setting if an unencumbered view of the surrounding area or a specific area is a characteristic that contributes to the significance of the resource. Similarly, operational noise that exceeds the ambient level of a sensitive noise receptor can cause material impairment to a historical resource that derives part or all its significance from an inherently quiet auditory setting.³ Finally, atmospheric intrusions, such as those caused by the introduction of high levels of fugitive dust emissions or chemical pollutants, can result in adverse effects that directly and physically affect biological landscape features that have been identified as historical resources for the purposes of CEQA. Overall, while direct effects clearly include physical effects, they may also include other types of effects that are visual, vibratory, auditory, or atmospheric in nature if the effect is caused by and occurs at the same time and place as the project and there is no other intervening cause between the activities or components of the project and the historical resource.

By contrast, an indirect or secondary effect is a reasonably foreseeable effect caused by the project that occurs later in time or is farther removed in distance. Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems (14 CCR Section 15358[a][2]). Because these types of effects are not immediately related to the project, they are considered secondary effects.

Cumulative impacts refer to two or more individual effects that, when considered together, are considerable or compound or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment that 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 (14 CCR Section 15355[a]-[b]). The API for cumulative impacts, if any exist, would include the API for direct effects, indirect effects, or both because in order for a cumulative impact to exist, a historical resource must first be directly or indirectly affected by the project.

³ Construction noise that exceeds the ambient level of a sensitive noise receptor is not analyzed because it is considered a temporary impact that would not have an adverse effect on historical resources because it would not cause physical damage and would not permanently alter or diminish the integrity of such resources. Temporary construction noise would not result in a substantial adverse change in the significance of a historical resource and, therefore, would not cause a significant impact under CEQA.

1.4.1 Area of Potential Impacts for Built Environment Properties

Delineation of the API considered the proposed project activities in conjunction with historic-era built environment resources that are 45 years of age or older (those built in or prior to 1981) that may sustain impacts due to the construction or operation of the project.⁴ Additional considerations used to justify the delineation of the API include the following:

The API is limited horizontally by the boundaries shown in Figure 2, which include both the project area and the WWTF boundary (subject property). This property covers five APNs—004-331-02, 004-331-03, 004-331-05, 004-331-06, and 004-331-08—resulting in a non-contiguous API.

A portion of the WWTF, initially established circa (c.) 1928, was previously evaluated in 2017 by ESA, and SHPO concurred on its ineligibility in 2020 (Ref # EPA_2020_0731_001). The facility elements previously evaluated by ESA include Map IDs 1 through 7 in Table 1 below. Since 2017, several previously unevaluated plant components have reached the 45-year threshold for historic consideration. As a result, the entire facility, including these newly eligible elements, is now encompassed within the API and is addressed in this report.

Table 1. Built Environment Resources Located Within the API

Map ID	Name/Use	Location	Year Built	Evaluation Status
Waste Water Treatment Facility Components				
1	Digester 2	Wastewater Treatment Facility	1948	6Y
2	Digester 3	Wastewater Treatment Facility	1948	6Y
3	Nonpotable Water Tank	Wastewater Treatment Facility	1948	6Y
4	Process Control/ Administration Building	Wastewater Treatment Facility	1965, addition 1988	6Y
5	Primary Sedimentation Structure	Wastewater Treatment Facility	1965, addition 1968–1988	6Y
6	Dissolved Air Flotation Thickener (DAFT) 1	Wastewater Treatment Facility	1965	6Y
7	Influent Pump Station	Wastewater Treatment Facility	1965	6Y
8	Maintenance Building	Wastewater Treatment Facility	1968–1982, addition 1988	Previously unevaluated
9	Primary Digester 1	Wastewater Treatment Facility	c. 1982	Previously unevaluated
10	Thickener 2	Wastewater Treatment Facility	c. 1982	Previously unevaluated

⁴ While the 50-year threshold is generally used for listing resources in the National Register of Historic Places (NRHP) and the California Register of Historical Resources (CRHR), the California Office of Historic Preservation's (OHP) Instructions for Recording Historical Resources recommends recording "any physical evidence of human activities over 45 years for the purposes of inclusion in the OHP's filing system." It also allows for the "documentation of resources less than 45 years . . . if those resources have been formally evaluated, regardless of the outcome of the evaluation." Further, the guidance notes that the 45-year threshold recognizes that there is commonly a 5-year lag between resource identification and the date that planning decisions are made, and thus it explicitly encourages the collection of data about resources that may become eligible for the NRHP or CRHR within that planning period. More restrictive criteria must be met before the resources included in OHP's filing system are listed, found eligible for listing, or otherwise determined to be important in connection with federal, state, and local legal statuses and registration programs (OHP 1995: 2).

Table 1. Built Environment Resources Located Within the API

Map ID	Name/Use	Location	Year Built	Evaluation Status
Waste Water Treatment Facility Components				
11	Digester 4	Wastewater Treatment Facility	1988	Previously unevaluated
12	Electrical Building	Wastewater Treatment Facility	1988	Previously unevaluated
13	Digester 5	Wastewater Treatment Facility	c.1988–1998	Previously unevaluated
14	Cogeneration	Wastewater Treatment Facility	c. 1988–1998	Previously unevaluated
15	Solids Dewatering Building	Wastewater Treatment Facility	c. 1988–1998	Previously unevaluated
16	Preaeration Grit Structure	Wastewater Treatment Facility	c. 1988–1998	Previously unevaluated
17	Effluent Pumping Station	Wastewater Treatment Facility	c. 1988–1998	Previously unevaluated
18	UV Filtration	Wastewater Treatment Facility	c. 1988–1998	Previously unevaluated
19	Locker and Garage Building	Wastewater Treatment Facility	c. 1993	Previously unevaluated
20	Metering and Switch Unit	Wastewater Treatment Facility	c. 1993	Previously unevaluated
21	Trickling Filters 1–6	Wastewater Treatment Facility	c. 1993–2005	Previously unevaluated
22	RSS and TFE Channels	Wastewater Treatment Facility	c. 1993–2005	Previously unevaluated
23	Secondary Clarifier Structure 1	Wastewater Treatment Facility	c. 1993–2005	Previously unevaluated
24	Secondary Clarifier Structure 2	Wastewater Treatment Facility	c. 1993–2005	Previously unevaluated
25	Secondary Clarifier Structure 3	Wastewater Treatment Facility	c. 1993–2005	Previously unevaluated
26	Odor Control System	Wastewater Treatment Facility	c. 1998–2005	Previously unevaluated
27	Effluent Filtration	Wastewater Treatment Facility	c. 1998–2005	Previously unevaluated
28	Laboratory	Wastewater Treatment Facility	c. 1998–2005	Previously unevaluated
29	(Secondary) Administration Building	Wastewater Treatment Facility	c. 2005	Previously unevaluated
30	UV Disinfection Building	Wastewater Treatment Facility	c. 2005	Previously unevaluated

Notes: API = area of potential impacts; c. = circa.

6Y: Determined ineligible for NRHP by consensus through Section 106 process – Not evaluated for CRHR or local listing.

The adjacent La Barranca Park was excluded from the API because it was established in 2003 and is not over 45 years of age (Alvarado 2022).

One additional resource was excluded from the API, the Southern Pacific Railroad (SPRR), a designated historical resource, was identified adjacent to the Project during the CHRIS records search. The SPRR is excluded because the proposed project would route utilities through existing utility channels located beneath the railroad right-of-way (ROW) and would not involve the installation of new trenches or other ground-disturbing activities within the railroad corridor. Protective barriers are proposed around the SPRR near planned construction activities to prevent inadvertent damage to its character-defining features during construction. Therefore, the Project activities would not affect the resource in a manner that would diminish physical characteristics that convey its historical significance.

The adjacent, paved city parking area proposed for use as a potential staging area was included in the API, but does not contain known or potential historic built environment resources.

Finally, since there are no reasonably foreseeable project activities that would occur later in time or that would be farther removed in distance that could indirectly affect historical resources, the API contains no geographic areas under consideration for indirect effects.

2 Literature Review, Background Research, and Methods

This section provides the results of the CHRIS records search at the Northwest Information Center (NWIC), a summary of archival research methods and additional records reviews, and a narrative description of historical aerial photographs of the subject property and surrounding area. The consultation with interested parties will be initiated once the CEQA process is initiated by the lead agency.

2.1 CHRIS Records Search

On January 22, 2026, Charles Mikulik Archaeological Consulting, LLC conducted a records search for the WWTF at the NWIC at Sonoma State University (NWIC File No. 25-1099). The search included any previously recorded cultural resources and investigations within a 0.50-mile radius of the proposed project site. The CHRIS search also included a review of the lists for the NRHP, the CRHR, the California Points of Historical Interest, the California Historical Landmarks, the Archaeological Determinations of Eligibility, and the California State Historic Resources Inventory. Dudek reviewed the NWIC records to determine whether the implementation of the proposed project would have the potential to impact any known and unknown cultural resources. The results presented below only discuss previously conducted cultural resource studies that include historic built environment resources and previously recorded historic built environment resources.

2.1.1 Previously Conducted Cultural Resource Studies

Results of the cultural resources records search indicate that four previous cultural resource studies intersect the proposed project site. Table 2, below, includes two cultural resource studies that appear to include built environment resources.

For the full results of the records search including archaeological resource studies, see Dudek’s 2026 Archaeological Assessment for this project.

Table 2. Previous Cultural Resources Studies Within the Project Area

IC Report ID	Author	Year	Report Title
S-48695	P.S. Preservation Services	1992	Historical Architectural Survey Report for City of Santa Cruz Wastewater Treatment Plant Modification Program
S-52428	ICF International	2018	Historic Property Survey Report: HPPL-5025(061)

Note: IC = Information Center.

S-48695

P.S. Preservation Services (1992) conducted a historic architectural survey report in compliance with Section 106 for the Wastewater Treatment Plant Modification Program for the WWTF within the API. The survey consisted of inventory and evaluations of 16 residential properties across from the proposed project, located on Bay Street, National Street, Columbia Street, and California Avenue. The report concluded that only four residences were 50 years or older at the time of survey and none were identified as eligible for listing in the NRHP.

S-52428

ICF International (2018) conducted a historic property report for the Santa Cruz Rail Trail Segment 7 Project, which included a 2.1-mile, dual-phased, new paved bicycle and pedestrian trail at an existing rail line from Natural Bridges Drive to the west to Pacific Avenue to the east. The project APE paralleled and did not intersect the existing SPRR rail line, which is adjacent to the WWTF. The California Department of Transportation provided a determination of A Finding of No Adverse Effect (without Standard Conditions) for the undertaking.

2.1.2 Previously Recorded Built Environment Resources in the API

The NWIC records included one record for previously recorded built environment resources within the API: the Santa Cruz WWTF (P-44-001254) (Table 3). The WWTF, initially established c. 1928, was previously evaluated in 2017 by ESA, and SHPO concurred on its ineligibility in 2020 (Ref # EPA_2020_0731_001). The facility elements previously evaluated by ESA include Map IDs 1 through 7, as shown in Table 1 in Section 1.4.1, Area of Potential Impacts for Built Environment Properties. See Section 1.4, Area of Potential Impacts, for additional information.

Table 3. Previously Recorded Built Environment Resources Within the API

Primary Number	Description	Recording Events	NRHP/ CRHR Status	Proximity to the API
P-44-001254	Santa Cruz WWTF	2017 (Johanna Kahn, ESA)	6Y	Within API

Notes: API = area of potential impacts; WWTF = Wastewater Treatment Facility; NRHP = National Register of Historic Places; CRHR = California Register of Historical Resources.
6Y: Determined ineligible for NRHP by consensus through Section 106 process – Not evaluated for CRHR or local listing.

2.2 Additional Records Reviewed

The following sources provide additional information regarding the potential of built environment resources located within the API. This information was used to understand the history of the area and how the landscape has changed and developed over time.

2.2.1 Built Environment Resource Directory

The California Office of Historic Preservation (OHP) maintains the Built Environment Resource Directory (BERD), an inventory of built environment cultural resources that are processed through OHP's office. A February 2, 2026, search of the BERD for Santa Cruz County (dated October 13, 2020) showed the Santa Cruz WWTF addressed as 110 California Street was listed in the BERD with a California Historical Resource Status Code of 6Y: determined ineligible for NRHP by consensus through Section 106 process – Not evaluated for CRHR or local listing, given on August 28, 2020, as part of a U.S. Environmental Protection Agency (EPA) federal undertaking under Section 106 (Ref # EPA_2020_0731_001).

2.2.2 Calisphere

Calisphere provides access to 2,000 collections contributed by more than 300 cultural heritage organizations in California, including universities, libraries, archives, museums, and historical societies. Dudek searched for the subject property's address and other keywords on Calisphere on February 2, 2026. The search did not result in relevant information pertaining to the project area.

2.2.3 Online Archive of California

The Online Archive of California provides free public access to detailed descriptions of primary resource collections maintained by more than 300 contributing institutions, including libraries, special collections, archives, historical societies, and museums throughout California and collections maintained by the 10 University of California (UC) campuses. Dudek searched for the address and name associated with the subject WWTF property on the Online Archive of California on February 2, 2026. The search results yielded the following pertinent archives: (1) Patton (Gray) Political Papers, 1975–1994, which include the Santa Cruz Wastewater Facilities Plan and 1979 Environmental Impact Report (EIR), held at UC Santa Cruz's Special Collections and Archives; (2) Bascom (Willard) Papers, 1938–2000, which includes the Santa Cruz Wastewater Treatment Plant, 1985–1986, held at UC San Diego's Special Collections and Archives; and (3) Clean Water Grant Projects Collection, 1975–1979, which includes the 1976 Brown and Caldwell Santa Cruz Wastewater Facility Planning Study, held at UC Riverside's Water Resource Collections and Archives. Only the Final Environmental Impact Statement (EIS) and Report: Santa Cruz Wastewater Facilities Plan, April 1980, was referenced for the preparation of Section 3, Historic Context, and Section 4, Results of Identification and Evaluation Efforts (EPA 1980).

2.2.4 Santa Cruz Public Libraries Local History Collection

The Santa Cruz Public Libraries Local History Collection is a searchable online database composed of several smaller collections. Dudek searched for the subject property's address and other keywords on the Local History Collection on February 2, 2026. The search did not result in relevant information pertaining to the project area.

2.2.5 County of Santa Cruz Assessor

Dudek obtained assessor data from the County of Santa Cruz Assessor's Office for the subject property at 110 California Street on February 2, 2026. The assessor data provided information about square footage, tract numbers, and limited information on deed transfers. These documents were used in the preparation of Section 3 and Section 4.

2.2.6 City of Santa Cruz Architectural Plans

On January 19, 2026, Dudek requested to review architectural and engineering plans associated with the WWTF on file with the City of Santa Cruz Public Works Department. The City responded to the public records request on January 20, 2026, and sent Dudek digital plan sets for the subject property. Dudek reviewed all available architectural plans. These documents were used in the preparation of Section 3 and Section 4.

2.2.7 Historical Aerials

A review of historical aerial photographs was conducted as part of the archival research effort for the proposed project. The aerial photographs provided a general idea of growth in the neighborhoods and on the subject property (NETR 2026; UCSB 2026).

2.2.8 Historical Newspapers

Dudek reviewed historical newspapers from the California Digital Newspaper Collection and Newspapers.com covering the City of Santa Cruz and the surrounding area to understand the development of the city and the subject property. These documents were used in the preparation of Section 3 and Section 4.

2.3 Interested Party Correspondence

On February 12, 2026, Dudek sent an outreach letter and figure depicting the project area to Jessie Durant, Archivist at the Museum of Art and History, and to Felicia Van Stolk, Executive Director of the Santa Cruz Museum of Natural History. The letter provided a brief description of the proposed project and requested information about historic and cultural components in or near the project area. To date, no responses have been received. Copies of the interested party correspondence have been submitted in conjunction with this project and all responses are in Appendix A.

2.4 Field Survey

Dudek Architectural Historian Fallin Steffen, MPS, conducted an intensive-level survey of the API on January 30, 2026. The survey entailed documenting the exteriors of the subject property with notes and photographs, specifically noting character-defining features, spatial relationships, and observed alterations, and examining any historic landscape features on the property.

3 Historic Context

This context is provided to ascertain what significant themes are present. Dudek provides this context to better understand the context of any of the identified previously recorded or newly documented resources in the API. This context provides an overview of the historic themes and the building types that were documented as part of this study.

3.1 Historical Overview of the City of Santa Cruz

3.1.1 Spanish Period (1769–1822)

In an effort to prevent the establishment of English and Russian colonies in northern Alta California, Don Gaspar de Portolá, the Governor of Baja, embarked on a voyage in 1769 to establish military and religious control over the area. This overland expedition by Portolá marks the beginning of California's Historic Period, occurring just after King Carlos III of Spain installed the Franciscan Order to direct religious colonization in assigned territories of the Americas. In July 1769, Padre-Presidente Franciscan Fr. Junípero Serra founded Mission San Diego de Alcalá at Presidio Hill, the first of the 21 missions that would be established in Alta California by the Spanish and the Franciscan Order between 1769 and 1823, including Mission Santa Cruz (Hoover et al. 2002: 226; Lehmann 2000: 3; Koch 1973: 3).

Father Fermín Lasuén, Corporal Luis Peralta, and five soldiers established Mission Santa Cruz on August 28, 1791, as the twelfth mission in the California Mission system. The Spanish Padres converted local Native Americans to Catholicism against their will, after which they were known as neophytes. Neophytes were forced to build the mission church and auxiliary structures from local timber, limestone, and adobe, as well as to cultivate wheat, barley, beans, corn, and lentils for their captors (Hoover et al. 2002: 448; Lehmann 2000: 3–4).

3.1.2 Mexican Period (1822–1848)

After more than a decade of intermittent rebellion and warfare, New Spain (Mexico and the California territory) won independence from Spain in 1821. In 1822, the Mexican legislative body in California ended isolationist policies designed to protect the Spanish monopoly on trade, and decreed California ports open to foreign merchants. In addition to eliminating the system of Spanish nobility in California, the Spanish missions across the territory were secularized during this period. The secularization of the Spanish Missions meant that all communal mission property was placed in a trust with the intention of being returned to the local Native American population. In Santa Cruz, the land stolen by the Spanish was returned to Native Americans between 1834 and 1839, but a smallpox epidemic in 1838 and reoccurring bouts of syphilis caused a massive decline in the Native American population so that very few eligible recipients survived to receive their property. Records indicate that only 25 Native Americans held property in the Santa Cruz area between 1834 and 1849 (Koch 1973: 10; Lehmann 2000: 4–5).

Extensive land grants were established in the interior during the Mexican Period, in part to increase the population inland from the more settled coastal areas where the Spanish had first concentrated its colonization efforts. Land grants to citizens covered more than 150,000 acres of present-day Santa Cruz County (Hoover et al. 2002: 458; Koch 1973: 11).

3.1.3 American Period (1848–Present)

The Mexican–American War ended with the Treaty of Guadalupe Hidalgo in 1848, ushering California into its American Period. Santa Cruz was designated as one of the 27 original counties of California on February 18, 1850, shortly before California officially became a state with the Compromise of 1850. The new State of California recognized the ownership of lands in the state distributed under the Mexican land grants of the previous several decades (Lehman 2000: 5; Koch 1973: 35).

In 1849, as the momentum of the Gold Rush grew, a massive influx of people seeking gold steadily flooded the rural counties of California. The difficulties of mining for gold caused new arrivals to refocus on other economic opportunities. In Santa Cruz County, insightful entrepreneurs saw the arrival of opportunity-seeking laborers as a means to harvest the abundant natural resources found in the area. The lumber, mining, fishing, and tanning industries formed the economic foundation of the County. In the central and southern areas of the County, early settlers took advantage of the fertile soil and temperate climate to establish large farms and dairies. Agricultural products including grain and apples were among the County’s earliest and most successful (Lehmann 2000: 7).

Interest in the beauty of the Monterey Bay drew visitors to the County as early as the 1860s, causing beach tourism to emerge as a major industry in the County. Tourism was also responsible for quickening the rate of development along the scenic coastal areas of Santa Cruz County. A rail line running from Gilroy to Santa Cruz by way of Watsonville was completed by 1876, followed shortly thereafter by a narrow gauge line from Santa Cruz to Felton. The completion of the Santa Cruz–Watsonville Railroad allowed for greater mobility to the area from the inland counties of California by both residents and tourists alike. As the Santa Cruz port altogether declined due to lack of use and the ease of transport by train, the beachfront areas of the city presented savvy entrepreneurs with emerging opportunities (Lehmann 2000: 14, 25–6).

By 1893, Harper’s Weekly acknowledged the City of Santa Cruz as a beach destination, promoting beachside institutions like the Neptune Baths built in 1884 by Captain C.F. Miller—the push needed to become a national tourist destination. The economic transition away from the early industries in the City and the County toward tourism during this period helped alleviate the strain placed on the forests in the north of the County, which had experienced widespread deforestation as a result of early logging and lime production activities in that area. Few old-growth redwood specimens remained in the forests of the Santa Cruz Mountains, and as it became clear that these trees were capable of drawing crowds on their own, their conservation became a dual effort to both save the trees and simultaneously promote Santa Cruz County as a one-stop tourism destination. A tourist to Santa Cruz County could visit the ocean and the big trees in one day with the help of the train. Conservation groups, including the Sempervirens Club of California, advocated for the protection of the remaining clusters of coastal redwoods, resulting in the foundation of the present-day Big Basin Redwoods State Park. By the time the City was acknowledged as a beach destination nationally by Harper’s Weekly in 1893, real estate entrepreneurs in the City were already in the process of purchasing and subdividing large swaths of land in the western section of the City, south of present-day Mission Street. Many of these prominent early sub-developments, including the Ocean View (1888), Garfield Park (1889), and Surfside (1889) tracts, retain their original lot configurations to this day (Lehmann 2000: 14–15, 21).

3.2 Water Management in the City of Santa Cruz (1860s–1970s)

As water management techniques were being applied to a variety of industries throughout the County, the successful technologies developed and used in early natural resource harvesting, such as flumes and pumps, prompted local residents in the City of Santa Cruz to consider why these were not being put to use for the benefit of drinking water.

Beginning in the 1860s, acute cyclical water shortages and pollution prompted the development of several for-profit water systems in Santa Cruz. By the end of the 1880s, the two surviving major water companies, F.A. Hihn Water Works and the Santa Cruz Water Company, were joined into a single private business that competed with the City's new municipal water system that began in 1890 for almost three decades before being purchased by the City and integrated into the municipal system in 1916.

During the 1880s, the rising price of these fee-based water systems like the F.A. Hihn Water Works and the Santa Cruz Water Company prompted the City to explore its own, City-owned, public water option. After several disappointing attempts to acquire an existing system of water works, the City revised its approach and began planning to build a diversion system and storage reservoir, prompting the development of the first municipal water project in Santa Cruz: the Laguna Creek Dam and the Cowell Reservoir. This project led the way for other ambitious water system development in the City, including several other North Coast stream diversions and the first pumping plant on the San Lorenzo River. In 1916, the City acquired the rights to the Santa Cruz Water Company and began to tie in the systems as one, forming the basis of the modern City system used today.

Fredrick Hihn passed away in 1913 and his ownership of the Santa Cruz Water Company passed to his children. The City seized the opportunity to acquire the Santa Cruz Water Company system, and in 1916 assumed full legal ownership of the entire system, which included right to water being drawn from Branciforte Creek, Carbonera Creek, Majors Creek, and the San Lorenzo River (SCWD n.d.: 2; Monterey American 1913: 7; Santa Cruz Evening News 1914: 1).

Public development during the period of 1918–1939 was predominantly focused on the repair and upgrade of existing system components. Although upgrades and additions were added to the several major facilities to increase the ability to store and improve the overall quality of municipal water during this period, with projects such as the Bay Street Reservoir in 1924 and the New Crossing Street Pumping Plant in 1929, the output was not widely increased between 1917 and 1930. Service began expanding into the areas to the east outside of the City with focused initiatives like the East Side Water Extension during this period (Brown and Dunlap 1956: 1–2).

Many of the post-war water projects in Santa Cruz can be characterized as repair of existing infrastructure and expansion of the overall water system to support rapid population growth. The years following World War II provoked westward migration and an increase in birth rates, causing the population of California to increase from 6.95 million to 10.65 million between 1940 and 1950. In Santa Cruz, the growth of the community from 27,430 to 41,680 between 1940 and 1950 caused the common seasonal water shortages during dry months to become problematic in regard to growth and potential for community expansion (SCPL n.d.: 1).

In 1945, the state recognized a water shortage in Santa Cruz and authorized an investigation of available water resources. In 1946, the acute nature of the water crisis prompted the community to request a survey to determine

an inventory of the available groundwater supply and plan for growth in the future. Completed in 1948, the survey determined that although the San Lorenzo pumping plant was running at full capacity, 24 hours per day during the dry summer of 1947, the river was so low that the entire run was being diverted through the pumps and into the City mains for consumption (SWRCB 1953: 57; Brown and Dunlap 1956: 1–2).

Prompted by these concerns, in 1953 the State Water Resources Control Board released a report that inventoried available surface and underground water sources in the County and projected increased water utilization that exceeded the available water in Pajaro Valley, the Soquel Creek area, and the coastal area around and including Santa Cruz. The report identified requirements for supplemental water for Santa Cruz and areas served by the Santa Cruz City Water Department (SWRCB 1953: 57).

The County formed the Santa Cruz County Flood Control and Water Conservation district in 1955 and hired Creegan & D'Angelo Civil Engineers in 1956 to complete an extensive survey identifying dam sites, groundwater sources, and additional steps to improve control of the water supply throughout the County to compete with the City's proposals. The report asserted that population growth was a major concern for the water supply in the City because "the City of Santa Cruz has current water requirements which equal the capacity of the existing water supply system during a relatively dry era. Should an exceptionally dry season be experienced, there would be a serious water shortage in the City of Santa Cruz" (Creegan & D'Angelo 1957: 8).

Present supplies were determined to be insufficient for standard rates of population growth, including years that rainfall was considered more plentiful. Despite the rate of water consumption in the service area tripling between the mid-1930s and mid-1950s, there were no additions to the municipal water supply during that time. Creegan & D'Angelo would also serve as the engineers for the Santa Cruz County Flood Control and Water Conservation District Advisory Committee, and ultimately, their recommendation to the council to remedy the current water crisis in the City was a dam on Newell Creek (Santa Cruz Sentinel 1953: 1, 1954: 1, 1958: 4).

A number of general obligation and revenue bonds helped to fund a wide range of water-related projects in Santa Cruz during this period, including routine maintenance and transmission line replacements, but also projects such as the Graham Hill Treatment Plant (1959), Newell Creek Dam (1960), the Tait Street Diversion (1961), and the Felton Diversion Station (1976). The need for these projects was driven by the need for more water to support a growing, post-war population, but the use of bonds allowed for flexibility to project for future growth. In 1974, the Santa Cruz Sentinel surmised that "successful bond issues in 1958, 1963 and in 1967 reflected public confidence in the water administration and a recognition of the needs for more water, apparently, for there was relatively little difficulty getting approval" (Santa Cruz Sentinel 1974: 1–2).

3.3 Development of the Santa Cruz Wastewater Treatment Facility (1928–Present)

Early Development

The following section concerning the early development of the subject property is quoted in its entirety from the California Department of Parks and Recreation (DPR) 523 form set prepared in 2017 by ESA for the WWTF (ESA 2017: 9):

The following history of wastewater treatment in the City of Santa Cruz is an excerpt from the 1973 Draft Environmental Impact Statement for the Treatment Facility Expansion and Interceptor Construction in the City of Santa Cruz:

Construction of sanitary sewers in Santa Cruz began in the 1880s when the population was about 4,000. By 1917, about $\frac{3}{4}$ of the city was sewered by a gravity system emptying into the San Lorenzo River and Monterey Bay. Because of the attractive bathing beaches in the area, this disposal method was unsatisfactory and in 1925 a comprehensive study was made of sewage collection and disposal. By 1928, essential parts of a waste water system with a treatment plant located at Neary's Lagoon were completed. In 1963, [engineering firm Brown and Caldwell] was hired to survey the whole drainage area. While the survey was underway, the Regional Water Quality Control Board noted that the City's treatment plant was not meeting existing requirements and prepared an "Order to Cease and Desist." A three stage construction was envisioned with the first stage to consist of a larger treatment plant with trunk sewers and tunnel outfall. This system was to meet the Board's requirements. In addition to contracts, 30 additional acres in Neary's Lagoon and 56 easements for the trunk sewers and outfall were acquired. This was accomplished in 1966.

The 1928 Sanborn map shows that a "city sewer pumping station" existed in the approximate location of the modern-day Neary Lagoon Public Tennis Courts. The sewer plant included a 1 $\frac{1}{2}$ -story-over-basement wood-frame pumping station building with a circular sewer well, sewer pumps, boilers, and an incinerator. The 1928-1950 Sanborn map shows that the sewer plant had been demolished and a new "City of Santa Cruz Sewer Pumping Plant" had been constructed in the location of the modern-day water treatment facility near the intersection of Bay and Liberty streets. Constructed in 1948, the plant was composed of two circular reinforced concrete tanks with a one-story control house connecting the tanks (Digesters 2 and 3, extant), a pre-existing pump house with a Greek-cross plan (shown as the chlorination station in a 1988 drawing and demolished sometime after that year), a circular vacuator (non-potable water tank, extant), and a one-story brick auto garage (demolished ca. 1952). The plant underwent a "primary upgrade" in 1965. Several new buildings are visible in a 1968 aerial photo, and these were located to the north and west of the 1948 plant. These include the pump house, the administration building (process control), and the southern portion of the primary sedimentation tanks (all extant). In 1985, the current outfall was completed. A 1993 aerial photo reveals that more buildings had been constructed since 1968. These include the primary digestion tanks, the solids dewatering building, the bar screen room, the grit removal tank, the UV filtration building, and the northern portion of the primary sedimentation tanks (all extant). The facility underwent an advanced primary upgrade in 1988 and a full secondary upgrade in 1998. A 2005 aerial photo shows that the most recent phase of construction on the plant included the effluent filtration building, the secondary clarifier tanks, the odor control system, the trickling filter building, and the solids contact tanks (all extant).

The wastewater treatment facility was not included in the 1976 Santa Cruz Historic Building Survey by Charles Hall Page & Associates of San Francisco. At that time, the oldest buildings on the property were 28 years old.

Santa Cruz Wastewater Facilities Improvements Plan

In 1980, the City of Santa Cruz Department of Public Works, the Santa Cruz County Sanitation District, and EPA Region IX developed the Santa Cruz Areawide Wastewater Facilities Plan. This plan outlined the City's approach to ensuring compliance with the Federal Water Pollution Control Act Amendments of 1972 and the California Ocean Plan adopted in 1972. The following highlights are summarized from the Final Environmental Impact Statement (EIS) and Report: Santa Cruz Wastewater Facilities Plan, April 1980 (EPA 1980: 5–6, 8, 9, 11, 13):

- The City and County of Santa Cruz began planning for the Santa Cruz Wastewater Facilities Improvements plan in October 1975, in which Brown and Caldwell were contracted to prepare the plan.
- Two planning committees met between 1976-1978. The first product of the planning effort was the Central Coastal Water Quality Control Plan (CCWQCP), a document that discussed various options for wastewater management and offered recommendations and guidelines. Brown and Caldwell used the CCWQCP to help draft the facility plans which offered numerous alternatives for wastewater treatment, disposal, and reuse.
- Draft EIS/EIR public hearings began in 1979. The community at large could not agree with proposed wastewater disposal methods. Although water reclamation gained public support at the hearings, the City finalized its plans to exclude wastewater reclamation. The final plan noted the WWTF as a primary treatment facility with a 21-million-gallon per-day average capacity and an offshore discharge point approximately 2,000 feet or 1 mile into the Pacific Ocean.

As a result of these modifications, the WWTF was expanded from 7 million to 21 million gallons per day and modernized its facilities. A \$2,986,500 federal grant helped fund the project, along with a state grant of \$1,357,500, and City funds. The modernization focused on treating solids so that the wastewater discharge would not contaminate the ocean (Santa Cruz Sentinel 1973: 2). Ultimately, the project was completed in three phases:

- Phase 1 (completed in 1988) extended the wastewater pipeline to the ocean.
- Phase 2 (completed in 1991) improved the filtration system overall. By 1991, the WWTF functioned with more efficient filters that contributed to safer and cleaner oceans. Mayor Don Lane stated, "This is not just a waste treatment plant, it's a water pollution control facility" (Santa Cruz Sentinel 1991: 2).
- Phase 3 (completed c. 1996) expanded the plant into the adjacent Neary Lagoon Park by adding a second filtering system that removed 95% of floating particles from wastewater (Santa Cruz Sentinel 1991: 2).

WWTF Present Functions

The following section is quoted in its entirety from the DPR 523 form set prepared in 2017 by ESA for the WWTF (ESA 2017: 9):

The following description of the modern-day functions of the Santa Cruz Wastewater Treatment Facility is an excerpt from *Waste Discharge Requirements Order No. R3-2010-0043* (2010):

The [City of Santa Cruz] owns and operates a wastewater collection, treatment, and disposal system which provides sewerage service for the City of Santa Cruz and areas of the Santa Cruz County Sanitation District. [...] The collection system comprises 145 miles of gravity sanitary sewer lines, 4.2 miles of force main, and

21 pump stations, all of which discharge untreated municipal wastewater to the treatment plant. The treatment plant also treats dry weather flows from Neary Lagoon, septage from unsewered areas, and grease trap pumping. [...] The treatment plant comprises screening, aerated grit removal, primary sedimentation, biological tower trickling filters, solids contact stabilization, and secondary clarification, and disinfection with ultraviolet light. Biosolids are processed by anaerobic digestion and centrifuge dewatering. Stabilized solids are transported to Merced County and applied to farmlands. Methane gas produced by anaerobic digestion is used to generate power and heat the treatment plant's digesters. Treated wastewater is discharged through a 12,250- foot outfall/diffuser system to Monterey Bay.

The Santa Cruz Wastewater Treatment Facility has received the following awards and accolades in recent years: Plant of the Year 2013 in its size category (California Wastewater Environment Association, CWEA); Monterey Bay Section Award in 2013, 2012, 2004, and 2003 (CWEA); and recognized as one of the nation's leading green power users in 2013 and 2012 (U.S. Environmental Protection Agency).

3.4 Engineers: Brown and Caldwell Civil and Chemical Consulting Engineers (1947-Present)

Engineers Kenneth Brown and David Caldwell founded Brown and Caldwell Civil and Chemical Consulting Engineers in 1947 in San Francisco, California. The firm specialized in surveys and consultation related to water supply management and treatment, and in the design of sewer and water treatment infrastructure, water and sewage treatment plants, and delivery pipelines.

The firm is presently still in operation and continues to provide a wide selection of services related to “safeguarding water, maintaining infrastructure, and restoring habitats” (Brown and Caldwell 2026b).

A representative selection of projects completed by Brown and Caldwell is presented below (Colfax Record 1949: 4; Napa Journal 1949: 7; Press Democrat 1951: 1; Ukiah Daily Journal 1957: 9; Daily Independent Journal 1958: 11; Sacramento Bee 1960: 18):

- Auburn Domestic Water Treatment Plant (consulting engineers), Auburn, California (1949)
- Conn Water System Investigation (consulting engineers), Napa County, California (1949)
- Santa Rosa Sewer Plant (consulting and designing engineers), Santa Rosa, California (1951)
- Ukiah Treatment Plant (designing engineers), Ukiah, California (1957)
- South Tahoe Public Utility District Sewage Treatment Plant (consulting engineers), South Lake Tahoe, California (1960)

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4 Results of Identification and Evaluation Efforts

To assess the property's historical significance and integrity, the Santa Cruz WWTF was recorded and evaluated in consideration of City of Santa Cruz Historic Resource Inventory (CSCHRI) designation criteria and integrity requirements. A physical description of the property and its development history is provided below. The property was previously evaluated for the NRHP and CRHR in 2017 and was found ineligible for listing under NRHP and CRHR criteria and SHPO concurred with those findings (ESA 2017; Ref # EPA_2020_0731_001). Therefore, the evaluation below only addresses CSCHRI eligibility criteria. The property significance evaluation was prepared by Dudek Architectural Historian Andrea Dumovich Heywood, MHC, who meets the Secretary of the Interior's Professional Qualification Standards for architectural history. Dudek's DPR 523 update form set and the complete 2017 evaluation by ESA is attached to this report as Appendix B.

4.1 The Santa Cruz Wastewater Treatment Facility (1948–Present)

The Santa Cruz WWTF (Exhibit 1) located in the City of Santa Cruz, was originally designed by civil engineer Daniel M. McPhetres in 1948 and consisted of three extant buildings: Digester 2 (known as the old primary digester), Digester 3 (known as the old secondary digester) with the connecting control house, and Water Tank (known as the old vacuator). The old pump house, also designed by McPhetres, was demolished after 1988. The engineering firm Brown and Caldwell designed the remaining buildings and structures on the facility beginning in the 1960s through present day. The plant presently contains the following extant elements listed in Table 4 and illustrated on Figure 2.

Exhibit 1. Overview of the Santa Cruz WWTF, view looking south (DSCN_0175).



Table 4. Buildings and Structures Associated with the Santa Cruz WWTF

Map ID	Name/Use	Year Built	Evaluation Status
1	Digester 2	1948	6Y
2	Digester 3	1948	6Y
3	Nonpotable Water Tank	1948	6Y
4	Process Control/ Administration Building	1965, addition 1988	6Y
5	Primary Sedimentation Structure	1965, addition 1968– 1988	6Y
6	DAFT 1	1965	6Y
7	Influent Pump Station	1965	6Y
8	Maintenance Building	1968–1982, addition 1988	Previously unevaluated
9	Primary Digester 1	c. 1982	Previously unevaluated
10	Thickener 2	c. 1982	Previously unevaluated
11	Digester 4	1988	Previously unevaluated
12	Electrical Building	1988	Previously unevaluated
13	Digester 5	c. 1988–1998	Previously unevaluated
14	Cogeneration	c. 1988–1998	Previously unevaluated
15	Solids Dewatering Building	c. 1988–1998	Previously unevaluated
16	Preaeration Grit Structure	c. 1988–1998	Previously unevaluated
17	Effluent Pumping Station	c. 1988–1998	Previously unevaluated
18	UV Filtration	c. 1988–1998	Previously unevaluated
19	Locker and Garage Building	c. 1993	Previously unevaluated
20	Metering and Switch Unit	c. 1993	Previously unevaluated
21	Trickling Filters 1–6	c. 1993–2005	Previously unevaluated
22	RSS and TFE Channels	c. 1993–2005	Previously unevaluated
23	Secondary Clarifier Structure 1	c. 1993–2005	Previously unevaluated
24	Secondary Clarifier Structure 2	c. 1993–2005	Previously unevaluated
25	Secondary Clarifier Structure 3	c. 1993–2005	Previously unevaluated
26	Odor Control System	c. 1998–2005	Previously unevaluated
27	Effluent Filtration	c. 1998–2005	Previously unevaluated
28	Laboratory	c. 1998–2005	Previously unevaluated
29	(Secondary) Administration Building	c. 2005	Previously unevaluated
30	UV Disinfection Building	c. 2005	Previously unevaluated

Notes: WWTF = Wastewater Treatment Facility; c. = circa.

6Y: Determined ineligible for NRHP by consensus through Section 106 process – Not evaluated for CRHR or local listing.

4.1.1 Site Overview

The following site overview description of the WWTF is quoted in its entirety from the DPR 523 form set prepared in 2017 by ESA (ESA 2017: 1):

The property occupies an area north of Bay Street between West Cliff Drive on the east, the Santa Cruz Branch Line Railroad on the south, California Street on the west, and Neary Lagoon Park on the north. All buildings were constructed at a lower elevation than Bay Street, and the campus is mostly hidden from view at the level of surrounding streets. All vehicular traffic enters the property by an access road from California Street (Exhibit 2). The entire property is paved with asphalt.

An access gate provides guarded entry onto the site.

Exhibit 2. Access road from California Street, view looking southeast (Google 2019).



4.1.1.1 Facility Elements

The WWTF contains a number of different functional elements and buildings spread across five parcels totaling 10.55 acres. The features of the site include Digesters 2 and 3 circular buildings, a Water Tank, a Process Control/Administration Building, a Primary Sedimentation Structure, a Dissolved Air Flotation Thickener concrete building, and an Influent Pump Station building.

The following brief descriptions of the Digesters, Water Tank, Process Control/Administration Building, Primary Sedimentation Structure, Dissolved Air Flotation Thickener, and an Influent Pump Station are quoted in their entirety from the DPR 523 form set prepared in 2017 by ESA for the WWTF. Dudek has added associated construction

dates in square brackets, as well as exhibits for each plant element called out in the text following the quoted text below (ESA 2017: 3–4):

Digesters 2 and 3 [1948; Exhibit 3; Map IDs 1 and 2]

Digesters 2 and 3 are identical circular buildings connected by a one-story, reinforced concrete control house (constructed in 1948). The digesters are clad in smooth concrete, and horizontal and vertical grooves are spaced at regular intervals around the buildings' exterior walls. A concrete staircase with a metal handrail is attached to Digester 2 on its southwest side. It provides roof access to both Digester 2 and the water tank immediately to the south. Another concrete staircase is attached to Digester 3 on its northeast side and provides roof access to Digester 3. At the roof level, metal handrails are located around the circumference of both digesters. The connecting control house is clad in painted concrete. It features industrial sash windows on its north and south façades, and the south façade also includes a pair of flush metal doors. The south façade terminates in a series of three horizontal grooves at the roofline. A one-story addition is located on the south side of the control house where it adjoins Digester 3. The addition is constructed of concrete masonry unit walls, features one industrial sash window and a pair of partially glazed flush doors, and is capped by a shed roof with composition shingles.

Water Tank [1948; also known as Non-Potable Water Tank; Exhibit 4; Map ID 3]

The water tank (formerly the vacuator, constructed in 1948) is a circular concrete building located directly south of Digester 2. The building is set on a raised concrete curb and has few distinguishing features. A horizontal groove runs around the center of the tank, and the façade terminates in a simple horizontal band at the roofline. A flush metal door is located at the north side of the tank. A metal staircase with a metal handrail is attached to the south side of the tank and provides roof access. A metal staircase at the roof level connects the water tank to Digester 2.

Process Control/Administration Building [1965, expanded after 1988; Exhibit 5; Map ID 4]

The process control/administration building (constructed in 1965, enlarged after 1988) is located directly west of Digester 3. Small landscaped areas are located around the building's perimeter. It is a one-story building with an L-shaped plan and a hipped, standing-seam metal roof. The north façade features a recessed entry with a glazed aluminum door, three multi-light steel-sash windows, and a metal overhang that provides covered parking for small vehicles. The east façade features a partially-glazed flush metal door and a concrete addition with a flush metal door.

Primary Sedimentation Structure [south part: 1965, north part: ca. 1968–1988; also known as Preaeration Grit Removal Structure; Exhibit 6; Map ID 5]

The Primary Sedimentation Structure is located directly west of the process control/administration building and was constructed in two phases. The south part was built in 1965, and the north part was built ca. 1968–1988. It is a one-story building with an irregularly-shaped plan. It is clad in smooth concrete, and a horizontal groove runs along the building's perimeter near the roofline. The primary (east) façade features groupings of one, two, and three arched recesses. Some recesses are blank walls. Several contain single steel-sash windows, and others contain single and double

glazed aluminum doors. A metal staircase with a metal handrail near the southeast corner of the building provides roof access; a metal handrail is located around the perimeter of the building at the roof level. A metal-frame roof structure was recently constructed at the southeast corner of the building. (It is shown in a 2017 aerial photo, but not in a 2013 aerial photo.) The roof covers a raised concrete platform that is accessed by concrete stairs.

Dissolved Air Flotation Thickener (DAFT) 1 [1965; also known as Sludge Thickener 1; Exhibit 7; Map ID 6]

Dissolved Air Flotation Thickener (DAFT) 1 (constructed in 1965) is a circular concrete building located directly north of Digester 3. Short concrete wing walls abut the building on its south side, and the building terminates in a round metal roof that is secured to the building with large clamps. A metal handrail is located around the circumference of the roof. Immediately to the east of DAFT 1 is a one-story rectangular building (constructed after 1968). Roof access to DAFT 1 is from a staircase attached to this building.

Influent Pump Station [1965; Exhibit 8; Map ID 7]

The Influent Pump Station (constructed in 1965) is located directly north of DAFT 1. It is a one-story building with a rectangular floor plan and a hipped roof with red roof tiles. The building is clad in smooth concrete and painted metal panels with large metal vents around the perimeter of the building. The south façade of the building features a pair of flush doors with vents.

Exhibit 3. Digesters 3 (left) and 2 (right), view looking northeast (IMG_11627).



Exhibit 4. Water Tank, view looking northwest (IMG_11639).



Exhibit 5. Process Control/Administration Building, view looking northeast (IMG_11637).



Exhibit 6. Primary Sedimentation Structure, view looking southwest (DSCN_0210).



Exhibit 7. DAFT 1, view looking north (IMG_11630).



Exhibit 8. Influent Pump Station, view looking west (DSCN_0190).



In addition to the elements described by ESA in 2017, which were completed during the initial phases of WWTF development, the following WWTF elements discussed below [Map IDs 8 through 30] were not included in the 2017 DPR because they were not age-eligible. They are now 45 years or older, and are described briefly below as part of this study.

Maintenance Building, 1968–1982, addition 1988 [Map ID 8]

The Maintenance Building (Exhibit 9) is located in the southeast section of the WWTF, just southwest of the Cogeneration Building. It is a one-story building with an irregular-shaped plan and has corrugated metal exterior with several roll-down vehicular doors.

Exhibit 9. View of Maintenance Building, view looking southeast (DSCN_0139).



Primary Digester 1, c. 1982 [Map ID 9]

The Primary Digester 1 building (Exhibit 10) is located in the eastern section of the WWTF, just north of the Cogeneration Building. Although the ESA 2017 DPR notes the build date as c. 1968–1988, historical aerials clearly show Primary Digester 1 constructed by 1982 (NETR 2026). The building features a circular plan with a rectangular-shaped control room to the west. Primary Digester 1 and the control room are clad in smooth concrete. Horizontal grooves wrap around the digester’s circular exterior and recessed arches are placed at each elevation of the control room along with metal security doors. A set of metal exterior stairs leads to the top of the control room and farther to the top of the digester, where metal railings wrap around the rim of the digester’s roof. A metal walkway connects Digester 1 to Digester 4.

Exhibit 10. View of Primary Digester 1, view looking northwest (DSCN_0182).



Thickener 2, c. 1982 [Map ID 10]

The Thickener 2 building (Exhibit 11) is located in the eastern section of the WWTF, just southwest of Primary Digester 1. Although the ESA 2017 DPR 523 form notes the build date as c. 1968–1988, historical aerials clearly show Thickener 2 constructed by 1982 (NETR 2026). The building features a circular plan clad in concrete with short concrete wing walls evenly spaced throughout its exterior. Metal railings wrap around the rim of the digester's roof and a metal walkway connects Thickener 2 to the central building between Thickener 1 and DAFT 1 to the west.

Exhibit 11. View of Thickener 2, view looking north (DSCN_0165).



Digester 4, 1988 [Map ID 11]

The Digester 4 building (Exhibit 12) is located in the eastern section of the WWTF, just southwest of Digester 5. The building features a circular plan clad in concrete. Metal railings wrap around the rim of the digester's roof and a metal walkway connects Digester 4 to Primary Digester 1 to the northwest.

Exhibit 12. View of Digester 4, view looking southwest (DSCN_0198).



Electrical Building, 1988 [Map ID 12]

The Electrical Building (Exhibit 13) is located in the southeast section of the WWTF, just south of Digester 3, and at the location of the original pumping station from 1928 that has since been demolished. The building features an L-shaped plan with a concrete exterior. Metal railings wrap around the roof's edge. A corrugated metal shed with three automobile roll-down doors is attached to the building's west elevation.

Exhibit 13. View of Electrical Building, view looking east (IMG_11638).



Digester 5, c. 1988–1998 [Map ID 13]

Digester 5 (Exhibit 14) is located in the northeast section of the WWTF, just north of Digester 4. The building features a circular plan clad in smooth concrete with horizontal grooves that wrap around the digester's circular exterior. An exterior concrete staircase leads to the top of the digester and metal railings wrap around the rim of the digester's roof.

Exhibit 14. View of Digester 5, view looking east (DSCN_0197).



Cogeneration (c. 1988–1998) [Map ID 14]

Cogeneration (Exhibit 15) is located in the eastern section of the WWTF, just south of Primary Digester 1. The building features a rectangular plan clad in corrugated metal. The building is externally connected to Primary Digester 1 by way of raised external pipes or a raised external walkway.

Exhibit 15. View of Cogeneration, view looking northeast (DSCN_0178).



Solids Dewatering Building (c. 1988–1998) [Map ID 15]

The Solids Dewatering Building (Exhibit 16) is located in the northeastern section of the WWTF, just south of the Preaeration Grit Structure. The two-story building features a rectangular plan clad in concrete. The building is externally connected to the Preaeration Grit Structure.

Exhibit 16. View of the Solids Dewatering Building, view looking south (DSCN_0206).



Preaeration Grit Structure (c. 1988–1998) [Map ID 16]

The Preaeration Grit Structure (Exhibit 17) is located in the eastern-center section of the WWTF, just south of the Solids Dewatering Building. The one-story building features a long rectangular plan clad in concrete. The building is externally connected to the Solids Dewatering Building and the Primary Sedimentation Tanks structure by way of raised external walkways.

Exhibit 17. View of the Preaeration Grit Structure, view looking south (DSCN_0207).



Effluent Pumping Station (c. 1988–1998) [Map ID 17]

The Effluent Pumping Station (Exhibit 18) is located in the southern-center section of the WWTF, just southwest and connected to the Primary Sedimentation Tanks. The two-story building features an asymmetrical plan clad in concrete that is tiered with a one-story section to the east and a two-story section to the west.

Exhibit 18. View of the Effluent Pumping Station, view looking northwest (DSCN_0218).



UV Filtration (c. 1988–1998) [Map ID 18]

The UV Filtration structure (Exhibit 19) is located in the center section of the WWTF, just north of the Locker and Garage Building. The UV Filtration structure was not available for recordation during field survey.

Exhibit 19. Aerial view of the UV Filtration structure, outlined in red (source: Esri World Imagery 2025, modified by Dudek).



Locker and Garage Building (c. 1993) [Map ID 19]

The Locker and Garage Building (Exhibit 20) is located in the center section of the WWTF, just west of the Primary Sedimentation Tanks. The one-story building features a long rectangular plan clad in corrugated metal with a nearly flat roof also clad in corrugated metal.

Exhibit 20. View of the Locker and Garage Building, view looking southeast (DSCN_0228).



Metering and Switch Unit (c. 1993) [Map ID 20]

The Metering and Switch Unit structure (Exhibit 21) is located in the southeastern section of the WWTF, just south of and connected to the Maintenance Building. The one-story building features a rectangular plan clad in corrugated metal with a corrugated metal roof.

Exhibit 21. View of the Metering and Switch Unit structure, view looking north (DSCN_0148).



Trickling Filters 1–6 (c. 1993–2005) [Map ID 21]

The Trickling Filters 1–6 structure (Exhibit 22) is located in the western section of the WWTF, just south of the Secondary Clarifiers. The multi-story Brutalist style structure features a long, rectangular plan clad in concrete and capped with six domes on the roof. The north elevation features a raised concrete platform accessible by multiple sets of concrete stairs, with multiple pairs of concrete cylinder support columns below an extended concrete roof with a broad concrete fascia.

Exhibit 22. View of Trickling Filters 1–6 structure, view looking west (DSCN_0239).



RSS and TFE Chaneles (c. 1993–2005) [Map ID 22]

The RSS and TFE Chaneles are located in the southwestern and southern sections of the WWTF, just below and underground the (Secondary) Administration Building. The chaneles are not visible above ground.

Secondary Clarifier Structures 1–3 (c. 1993–2005) [Map IDs 23–25]

The Secondary Clarifier Structures 1–3 (Exhibit 23) are located in the northern section of the WWTF, just north of the Trickling Filters 1–6. The three structures each feature a circular basin structure clad in concrete with metal support beams throughout its interior. Metal walkways with metal railings stretch across each clarifier.

Exhibit 23. View of a Clarifier Structure, view looking north (DSCN_0230).



Odor Control System (c. 1998–2005) [Map ID 26]

The Odor Control System structure (Exhibit 24) is located in the western section of the WWTF, just west of the Trickling Filters 1–6 structure. The structure features a system of metal pipes and concrete support structures.

Exhibit 24. Partial view of the Odor Control System, view looking southeast (DSCN_0254).



Effluent Filtration (c. 1998–2005) [Map ID 27]

The Effluent Filtration structure (Exhibit 25) is located in the central-north section of the WWTF, just north of the UV Filtration structure. The Effluent Filtration structure was not available for recordation during field survey.

Exhibit 25. Aerial view of the Effluent Filtration structure, outlined in red (source: Esri World Imagery 2025, modified by Dudek).



(Secondary) Administration Building (c. 2005) [Map ID 29]

The (Secondary) Administration Building (Exhibit 26) is located in the southwestern section of the WWTF, just east of and connected to the Trickling Filters 1–6 structure. The two-story Brutalist style building features an asymmetrical plan clad in concrete with metal frame windows, upper balconies, and several corrugated metal shed roofs.

Exhibit 26. View of the (Secondary) Administration Building, view looking southwest (DSCN_0238).



UV Disinfection Building (c. 2005) [Map ID 30]

The UV Disinfection Building (Exhibit 27) is located in the central section of the WWTF, just east of the Secondary Clarifier 2 structure. The building features an asymmetrical plan that sits on a raised concrete foundation. It is clad in concrete with a partially scored design and features a shed roof with parapet and attached corrugated metal shed roof canopy to the southeast.

Exhibit 27. View of the UV Disinfection Building, view looking northeast (DSCN_0235).



Lastly, the 2017 ESA DPR noted a Laboratory (c. 1998–2005) [Map ID 27]; however, during the field survey, a laboratory was not identified. Review of all available site plans and maps did not reveal the structure.

In addition to the buildings and structures listed in Table 4 above, the Santa Cruz WWTF contains numerous ancillary utility features typical of wastewater treatment facilities that are less than 45 years of age, including electrical substations, control systems, and related operational infrastructure, circulation systems, and parking areas. The internal roads and parking areas have been reconfigured and repaved numerous times. A representative photo of these features is provided below.

Exhibit 28. View of the Solids Dewatering Building (Map ID 15), showing typical substations less than 45 years of age (Substation 1a/1b) to the east (outlined in red), view looking west (DSCN_0205).



4.1.2 Modifications to the Santa Cruz Wastewater Treatment Facility

The following text provides a summary of subsequent modifications to the WWTF following its initial completion in 1948. The following list of modifications is quoted in its entirety from the DPR 523 form set prepared in 2017 by ESA for the WWTF (ESA 2017: 2):

The earliest extant buildings were constructed in 1948. The consulting sanitary engineer was Harry N. Jenks of Palo Alto and the civil engineer was D.M. McPhetres of Santa Cruz.

- 1948: Digester 2 (old primary digester, extant), Digester 3 (old secondary digester, extant) and connecting control house (extant); water tank (old vacuator, extant); old pump house (demolished after 1988)
- Ca. 1965: Process Control/Administration building (extant, enlarged after 1988); Influent Pumping Station (extant); south part of Primary Sedimentation Structure (extant); DAFT 1 (extant)
- Ca. 1968-1988: North part of Primary Sedimentation Structure (extant); Primary Digester 1 (extant), Locker and Garage Building (extant), Metering and Switch Unit (extant), Thickener 2 (extant)

- Ca. 1988-1998: Digesters 4 and 5 (extant); Cogeneration (extant); Solids Dewatering Building (extant); Preaeration Grit Structure (extant); Effluent Pumping Station (extant), UV Filtration (extant)
- Ca. 1998-2005: Secondary Clarifiers 1, 2, and 3 (extant); Laboratory (extant); Trickling Filters (extant); Odor Control System (extant), Effluent Filtration (extant)

The following list includes corrections to the above list cited from ESA's 2017 DPR regarding site modifications:

- Primary Digester 1 was constructed c. 1982 and not c. 1968–1988 (NETR 2026).
- Thickener 2 was constructed c. 1982 and not c. 1968–1988 (NETR 2026).
- A 1982 historical aerial shows the Locker and Garage Building was not constructed at that time. A Brown and Caldwell 1985 plan set also confirms it was not extant that year. The building first appears in a 1993 aerial and therefore has a build date of c. 1993 (NETR 2026).
- A 1982 historical aerial shows the Metering and Switch Unit was not constructed at that time, and a 1983 plan notes that it was planned for construction that year. It first appears in historical aerials by 1993 and therefore has a build date of c. 1993 (NETR 2026).

The following list of additional modifications was compiled from a review of as-built plans and specifications provided by the City (City of Santa Cruz Public Works Department 1983; Brown and Caldwell and Harvey & Stanley Associates, Inc. 1985; Brown and Caldwell 1992; Carollo Engineers 2001; SimplexGrinnell 2003; City of Santa Cruz Public Works Department 2008, 2010a, 2010b, 2017; Black & Veatch and Soquel Creek Water District 2021; RRM Design Group 2022):

- 1983 City of Santa Cruz Public Works Department—Enclosure for Switch and Meter Housing, new building construction plans.
- 1985 Brown and Caldwell (consulting engineers) and Harvey & Stanley Associates, Inc. (Ecological Consultants)—Wastewater Treatment Plant Modifications: Administration Building, Influent Pump Station, Sludge Thickener 1, Primary Sludge Digester 1, Secondary Sludge Digester 3, Non-Potable Water Tank, and Tunnel Portal Box. Conceptual Revegetation Plan.
- 1992 Brown and Caldwell (consultants)—Secondary Treatment Facility alterations.
- 2001 Carollo Engineers—Odor Control Phase 2 Project.
- 2003 SimplexGrinnell (contractor)—Fire protection: Added lams for monitoring of tamper and flows throughout facility, ran conduit next to sprinkler pipe for connection of tamper and flows, pull wire through conduit for connection, and Mapnet and 24VDC being pulled to all devices.
- 2008 City of Santa Cruz Public Works Department—Replacement of Digester #5 Gas Compressors.
- 2010 City of Santa Cruz Public Works Department:
 - Digester 5—Heat Loop Piping.
 - 54" Effluent Pump Pipeline Repair.
- 2017 City of Santa Cruz Public Works Department—Bioassay Laboratory Project.
- 2021 Black & Veatch and Soquel Creek Water District—Treatment Facilities Project: includes alterations to the Primary Sedimentation Tanks north elevation and to the adjacent structure to the northwest.

- 2022 RRM Design Group—Rail Trail Segment 7 Phase 2: construction of a multi-use trail located along the Santa Cruz Branch Line Railroad (to the south of the WWTF).

4.2 Summary of the 2017 NRHP/CRHR Statement of Significance with Updated Analysis

NRHP/CRHR Criterion A/1

The following NRHP/CRHR Criterion A/1 evaluation section is quoted in its entirety from the DPR 523 form set prepared in 2017 by ESA for the WWTF (ESA 2017: 10):

Criterion 1/a (Events). The Santa Cruz Wastewater Treatment Facility provides necessary public services, and it is not exceptional or significant for the role that it plays in Santa Cruz and the surrounding area. The facility won several awards and recognitions in the last 15 years, but not enough time has passed to gain a historical perspective on those events. Other water treatment plants in California predate the subject property, including the 1895 filtration plant at Lake Chabot in Castro Valley, which was the first and “long the most important” on the Pacific Coast. Prior to the 1920s, large-scale filtration plants had been used by larger cities in the eastern United States for decades, but California had focused on smaller scale local water distribution. Research does not suggest that the subject property contributed to broad patterns of local or regional history or the cultural heritage of California or the United States, and for this reason it is not recommended eligible for listing under Criterion 1/a.

Dudek agrees with the previous NRHP/CRHR Criterion A/1 evaluation. Dudek further asserts that the additional buildings that have reached 45 years of age are also not eligible under NRHP/CRHR Criterion A/1: Maintenance Building (1968–1982, addition 1988), Primary Digester 1 (c. 1982), and Thickener 2 (c. 1982). All three buildings/structures are not associated with events that have made significant contributions to the broad patterns of our history. They were built several decades after the early WWTF was constructed in 1948, during the facility’s expansion and modernization.

Although the original site of the subject WWTF property likely contained the first municipal wastewater facility in Santa Cruz City or County when it was originally built in c. 1928, all the original buildings and structures pertaining to the original wastewater facility have since been demolished. The original WWTF was built during a time when the City was actively pursuing public water development during the period of 1918–1939, which was predominantly focused on the repair and upgrade of existing system components, including projects such as the Bay Street Reservoir in 1924 and the New Crossing Street Pumping Plant in 1929. The WWTF was rebuilt in 1948, and has since been highly altered, expanded, and modified in numerous modernization efforts in the 1980s-1990s.

The subject WWTF was constructed in 1948 to address the growing City and County population. According to the 2023 report Drinking Water and Wastewater Treatment Facilities in California Historic Context and Research Design for National Register Evaluation (JRP and AECOM 2023), the WWTF’s initial development can be categorized into the later part of the “Era of Sanitary Engineering” period spanning from 1900–1949. During that time, there were swift sanitation technological and scientific advances, however, with few state regulations, “few municipalities constructed modern sewage treatment plants prior to World War II” (JRP and AECOM 2023: 63). The WWTF is a typical municipal sewage treatment facility constructed in the post–World War II era.

It has since been largely altered, expanded, and modernized. In the 1980s–1990s, the facility underwent a large-scale modernization project that was conducted in three phases to address environmental compliance and regulation. The modernization was typical for wastewater treatment plants and is not associated with an event that made a significant contribution to the broad patterns of history. The WWTF’s expansion period can be categorized within JRP and AECOM’s Era of Advanced Treatment context spanning from 1950 to c. 1980. During that time, “Environmentalism as a political force compelled higher standards of water and sewage treatment that were codified in state and federal law” (JRP and AECOM 2023: 154). WWTF’s expansion is associated with a national trend that was facilitated by the need to comply with the Federal Water Pollution Control Act Amendments of 1972, in addition to complying with the California Ocean Plan, and adapting to the City’s post-war population growth (EPA 1980: 5). Although associated with the environmental movement trend, it did not directly contribute to that movement in a major way or play a notable role that would deem it eligible under NRHP/CRHR Criterion A/1. The WWTF does not have a historic importance outside of fulfilling its ordinary role of sewage disposal as done by similar systems in numerous cities. The WWTF did not introduce or prove the efficacy of an important new technology, a public health measure, or environmental treatment standards. It is not closely associated with the creation of a type of political organization such as the Santa Cruz Public Works Department, which itself has importance in comparison to earlier Santa Cruz municipal organizations. It also was not identified as having any important social or political connections. Therefore, for the reasons stated above, the WWTF does not meet NRHP/CRHR Criterion A/1.

NRHP/CRHR Criterion B/2

The following NRHP/CRHR Criterion B/2 evaluation section is quoted in its entirety from the DPR 523 form set prepared in 2017 by ESA for the WWTF (ESA 2017: 10):

Criterion 2/b (People). Research did not reveal that the subject property is associated with any people who were/are important to local, California, or national history. Numerous people were involved in the design and construction of the wastewater treatment plant, and numerous others have been employed there over the years. However, none of these individuals has made specific contributions to history that have been identified and documented as associated with this property. For these reasons, the property is not recommended eligible for listing under Criterion 2/b.

Dudek agrees with the previous NRHP/CRHR Criterion B/2 evaluation. Dudek further asserts that the additional buildings that have reached 45 years of age are also not eligible under NRHP/CRHR Criterion B/2: Maintenance Building (1968–1982, addition 1988), Primary Digester 1 (c. 1982), and Thickener 2 (c. 1982). All three buildings/structures are not known to be individually associated with the lives of persons significant in our past. No individual person was identified through research as being associated with any of the three buildings/structures.

The subject WWTF is not associated with the lives of persons significant in our past. The WWTF was constructed as a municipal project in the 1948, and was later modernized in the 1980s–1990s. The original construction and modernization are not associated with any one individual but rather with the City’s engineering department and numerous governing bodies. As noted by JRP and AECOM (2023: 256), “[W]astewater systems do not commonly have strong, direct association with single individuals. They are instead usually the creation of municipal governments where credit and responsibility for the planning and construction of infrastructure are diffused among elected officials, city managers, and public works departments.” Therefore, the WWTF does not meet NRHP/CRHR Criterion B/2.

NRHP/CRHR Criterion C/3

The following NRHP/CRHR Criterion C/3 evaluation section is quoted in its entirety from the DPR 523 form set prepared in 2017 by ESA for the WWTF (ESA 2017: 10):

Criterion 3/c (Architecture). The oldest buildings on the subject property (Digesters 2 and 3 and the water tank) were designed in a simple utilitarian architectural style with restrained Streamline Moderne details. The Primary Sedimentation Structure, parts of which date from 1965 and ca. 1968-1988, was also designed in a utilitarian style. Even though the Streamline Moderne style had come to its popular end around 1950, this building exhibits some elements associated with Streamline Moderne, presumably in order to appear harmonious with the earlier buildings. It must be emphasized that the style of these buildings is not Streamline Moderne; rather the buildings are designed in a utilitarian style (meaning that the design is dictated primarily by the building's function). The Streamline Moderne details are so subtle that the buildings are not considered to embody distinctive characteristics of that style. Nor do they exemplify a method of construction or possess high artistic value. The three buildings dating from 1948 were designed by civil engineer Daniel M. McPhetres who also designed the Oak Creek and Kilburn Road bridges in Stanislaus County (1918), the Soquel Drive Bridge in Aptos (1928), and the Stockton Avenue Bridge in Capitola for the Works Progress Administration (1934). Research revealed little information about McPhetres. Even though he may have been a prominent local engineer, this would indicate that the buildings are not the work of a master. The process control/administration building, which was built in 1965, was enlarged after 1988. Historic photographs of the building were not found, but the extent of the alterations indicate that it no longer exhibits its original design. DAFT 1 and the Influent Pump Station are simply designed utilitarian buildings with little architectural detail. For these reasons, the subject property is not recommended eligible for listing under Criterion 3/c.

Dudek agrees with the previous NRHP/CRHR Criterion C/3 evaluation. Dudek further asserts that the additional buildings that have reached 45 years of age are also not eligible under NRHP/CRHR Criterion C/3: Maintenance Building (1968-1982, addition 1988), Primary Digester 1 (c. 1982), and Thickener 2 (c. 1982). All three buildings/structures are utilitarian in design and do not embody the distinctive characteristics of a type, period, or method of construction.

The subject WWTF was constructed in 1948 as a standard wastewater treatment facility with only a few structures. It has since been largely expanded and modernized to include several additional utilitarian buildings and structures that lack distinctive characteristics of a period, or method of construction, or represent the work of a master. Although they possess distinctive characteristics of a type of WWTF structure, they are not collectively or individually important examples within the context of the WWTF. The WWTF is not the earliest, best preserved, or rarest surviving example of its type. According to JRP and AECOM (2023: 257), "[M]any waste water systems followed standard designs that were widely constructed." Designed by Brown and Caldwell, an engineering firm, they do not represent the work of a master or possess high artistic values. Brown and Caldwell specialize in water supply management and treatment projects, and in the design of sewer and water treatment infrastructure. The firm is not known as a master engineer or master architect. None of the buildings and structures that comprise the facility, including the Maintenance Building, Primary Digester 1, and Thickener 2, represent a significant and distinguishable entity whose components may lack individual distinction. Therefore, the WWTF does not meet NRHP/CRHR Criterion C/3.

NRHP/CRHR Criterion D/4

The following NRHP/CRHR Criterion D/4 evaluation section is quoted in its entirety from the DPR 523 form set prepared in 2017 by ESA for the WWTF (ESA 2017: 10):

Criterion 4/d (Information potential). Research did not reveal that the Santa Cruz Wastewater Treatment Facility would provide important information relevant to history or pre-history that was not already known. For these reasons, the subject property is not recommended eligible for listing under Criterion 4/d.

Dudek agrees with ESA's evaluation of NRHP/CRHR Criterion D/4 in its entirety and has no additional edits or updates.

Conclusion

The following conclusion section is quoted in its entirety from the DPR 523 form set prepared in 2017 by ESA for the WWTF (ESA 2017: 10):

As the Santa Cruz Wastewater Treatment Facility does not meet any of the California and National Register criteria but retains a high degree of integrity, ESA recommends it to be ineligible for listing in the California and National Registers.

Dudek agrees with ESA's conclusion that the WWTF does not meet any of the NRHP/CRHR criteria and is not eligible for listing in either the NRHP or CRHR. However, Dudek does not agree that the WWTF retains a high degree of integrity as it has been largely altered and expanded since its original construction in 1948 with the addition of numerous buildings and structures.

4.3 NRHP Criteria Consideration G

ESA's 2017 DPR did not address NRHP Criteria Consideration G. The following is Dudek's discussion of NRHP Criteria Consideration G:

Although the remaining WWTF elements are situated within the API, they are currently less than 50 years of age and do not appear to rise to a level of consideration under NRHP Criteria Consideration G. Nearly all elements less than 50 years old at the WWTF serve utilitarian functions. Moreover, research does not indicate that the WWTF has a significant association with any events or persons important in history, nor does research suggest that this property possesses design or construction value, or information potential that is not already known or available in the historical record. As such, it lacks the necessary level of exceptional importance to satisfy NRHP Criteria Consideration G for properties that have achieved significance within the last 50 years. Therefore, it was not addressed further within this study.

4.4 CSCHRI Statement of Significance

1. Recognized as a significant example of the cultural, natural, archaeological, or built heritage of the city, state, or nation

The design of the WWTF is a conventional wastewater treatment facility and does not constitute a significant example of cultural, natural, archaeological, or built heritage of the city, state, or the nation. As such, it does not rise to the level to be called significant. For this reason, the property does not appear eligible under City Criterion 1.

2. Associated with a significant local, state, or national event

Archival research did not find any associations with events that have made a significant contribution to the broad patterns of local or regional history. While the WWTF was developed in 1948 during a period of infrastructure and utility expansion throughout Santa Cruz, and later modernized in the 1980s–1990s, it is not associated with any specific significant local, state, or national event. Therefore, the property does not appear eligible under City Criterion 2.

3. Associated with a person or persons who significantly contributed to the development of the city, state, or nation

Archival research did not find any associations with a person or persons who significantly contributed to the development of the city, state, or nation. For this reason, the property does not appear eligible under City Criterion 3.

4. Associated with an architect, designer, or builder whose work has influenced the development of the city, state, or nation

The WWTF is a conventional example of a wastewater treatment facility designed by civil engineer Daniel M. McPhetres in 1948, and later expanded by civil engineers Brown and Caldwell in the 1960s–present. Brown and Caldwell were responsible for the design of many water treatment facilities in the western United States and, as such, their contribution to the City of Santa Cruz is marginal at best. The WWTF is not associated with an architect, designer, or builder whose work has influenced the development of Santa Cruz, the state, or the nation. Therefore, for the reasons stated above, the property does not appear eligible under City Criterion 4.

5. Recognized as possessing special aesthetic merit or value as a building with quality of architecture and that retains sufficient features showing its architectural significance

The WWTF is a conventional example of a wastewater treatment facility, the design of which does not demonstrate the use of innovative, ground-breaking technology in the field of wastewater treatment, nor does it demonstrate a high quality of architecture that possesses any special aesthetic merit or value. For this reason, the property does not appear eligible under City Criterion 5.

6. Recognized as possessing distinctive stylistic characteristics or workmanship significant for the study of a period, method of construction, or use of native materials

The WWTF is a ubiquitous example of a wastewater treatment facility built from conventional, mass-produced materials during the mid-twentieth century. As such, it does not contain any particular distinctive stylistic characteristics or evidence of workmanship that could yield information about a particular period or method of construction. For these reasons, the property does not appear eligible under City Criterion 6.

7. Retains sufficient integrity to accurately convey its significance

Upon conclusion that the WWTF does not meet any of the required criteria for significance, the facility's current state of integrity is inconsequential. For this reason, the property does not appear eligible under City Criterion 7.

4.5 Integrity Discussion

National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation (NPS 1997) states that the integrity of a property is based upon the historical significance and character-defining features of that property, and that "only after significance is fully established can you proceed to the issue of integrity." Upon the conclusion that the WWTF does not meet any of the required criteria for significance, the facility's current state of integrity is inconsequential. As such, no assessment of integrity is provided in this evaluation.

4.6 Conclusion

In conclusion, the WWTF is not eligible for listing in the NRHP, the CRHR, or the CSCHRI. The WWTF was evaluated in accordance with Section 15064.5 (a)(2-3) of the CEQA Guidelines and using the criteria outlined in Section 5024.1 of the California Public Resources Code and does not appear to be a historical resource for the purposes of CEQA.

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5 Findings and Conclusions

The subject property was evaluated in consideration of NRHP, CRHR, and CSCHRI criteria. As a result of the evaluation, the WWTF is recommended ineligible for inclusion in the NRHP, CRHR, and CSCHRI.

No historical resources or historic properties were identified within the project API as a result of archival research, a NWIC records search, field survey, and significance evaluations. The subject property is not currently listed in any national, state, or local registers. In 2017, the WWTF was previously recorded and evaluated by ESA under the NRHP and CRHR and it was recommended as not meeting any of the significance criteria. This previous evaluation received concurrence on August 28, 2020, from SHPO (Ref # EPA_2020_0731_001). ESA did not include an evaluation under CSCHRI.

Dudek evaluated the resource in the API in accordance with Section 15064.5 (a)(2)-(3) of the CEQA Guidelines using the criteria outlined in Section 5024.1 of the California Public Resources Code and found that the one resource within the API (WWTF) is not considered a historical resource for the purposes of CEQA. The recommended California Historical Resource Status Code for the WWTF is 6Z.

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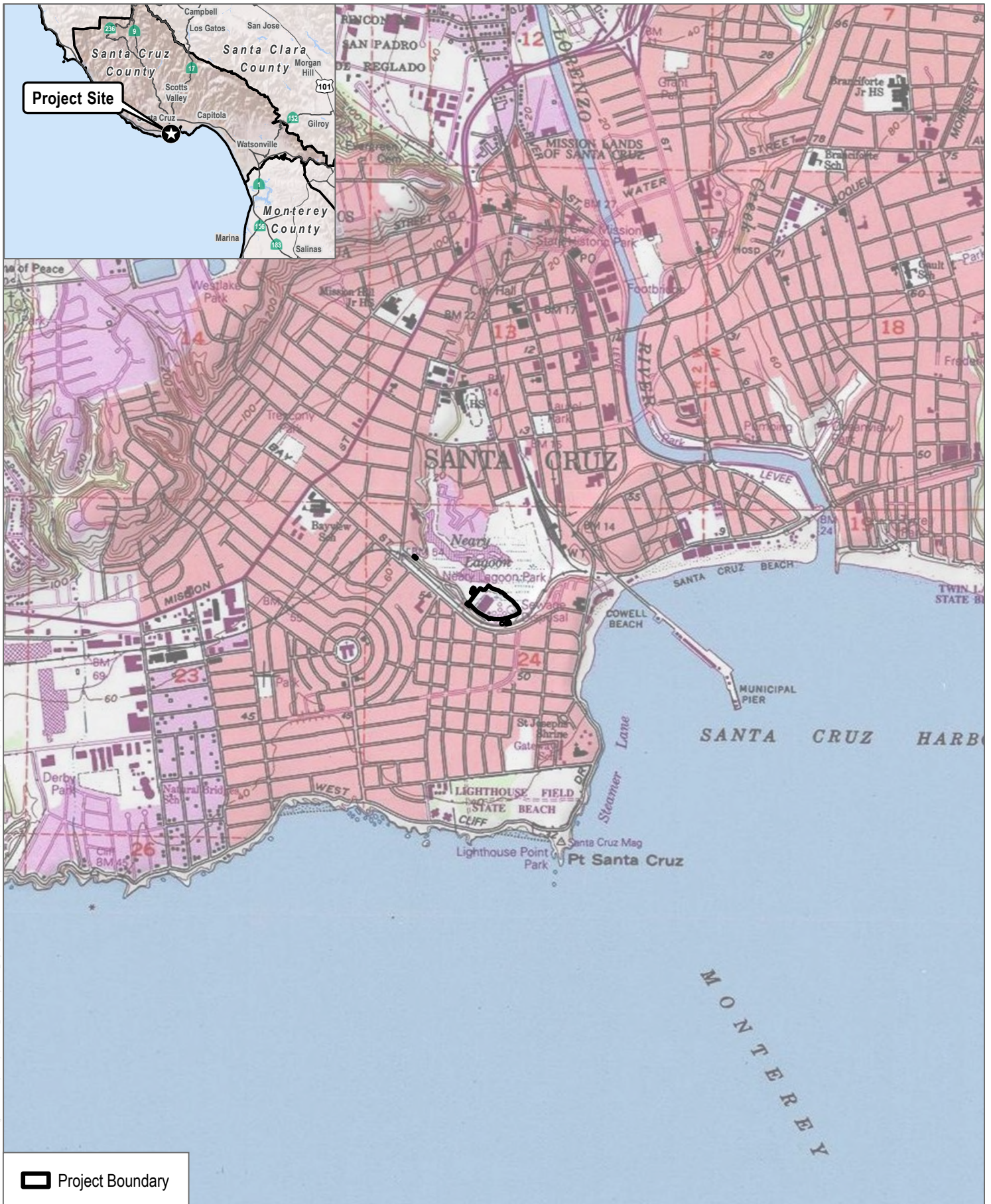
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SOURCE: USGS 7.5-minute Series Santa Cruz Quadrangle
Township 11S, Range 2W, Section 24

DUDEK



0 1,000 2,000
Feet

FIGURE 1

Project Location

City of Santa Cruz Wastewater Energy and Electrical Resiliency Project

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SOURCE: Esri Aerial Imagery, OpenStreetMap

FIGURE 2
Built Environment Area of Potential Impacts
City of Santa Cruz Wastewater Treatment Plant Project

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Appendix A

Interested Party Correspondence

From: [Andrea Dumovich Heywood](#)
To: jessie@santacruzmah.org
Cc: [Ann Sansevero](#)
Subject: City of Santa Cruz Wastewater Treatment Plant Project
Date: Thursday, February 12, 2026 9:55:00 AM
Attachments: [MAH.pdf](#)
[image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)

Hello Jessie,

I am reaching out today on behalf of Dudek and the City of Santa Cruz, Public Works Department, to provide you with some information about the City of Santa Cruz Wastewater Treatment Plant Project. As part of the cultural resources study for the proposed project, Dudek is consulting all regional historical organizations to determine if there are any known historic or cultural resources that may be within the proposed project area. Please see the attached letter and map for more information about the nature and location of the project, and please feel free to contact me should you have questions or information regarding cultural or historical resources in this area.

Thank you,
Andrea

Andrea Dumovich Heywood (she/her)
Architectural Historian

DUDEK

O: 949 373 8311 **C:** 949 641 7152

dudek.com





725 FRONT STREET, SUITE 400
SANTA CRUZ, CALIFORNIA 95060
T 831.600.1400 F 831.600.1401

Jessie Durant, Archivist
Museum of Art and History
705 Front Street
Santa Cruz, CA 95060

February 12, 2026

Subject: City of Santa Cruz Wastewater Treatment Plant Project

Dear Jessie Durant,

Dudek has been retained by the City of Santa Cruz, Public Works Department (City), to complete cultural resources inventory and evaluation reports for the City of Santa Cruz Wastewater Treatment Plant Project (Proposed Project). The City is pursuing the Project to modernize and improve the electrical distribution system at the City's wastewater treatment facility (WWTF), which was constructed between circa 1948-2005, and is located south of Neary Lagoon Park, at 110 California Street, Santa Cruz, California (see Figure 1 enclosed).

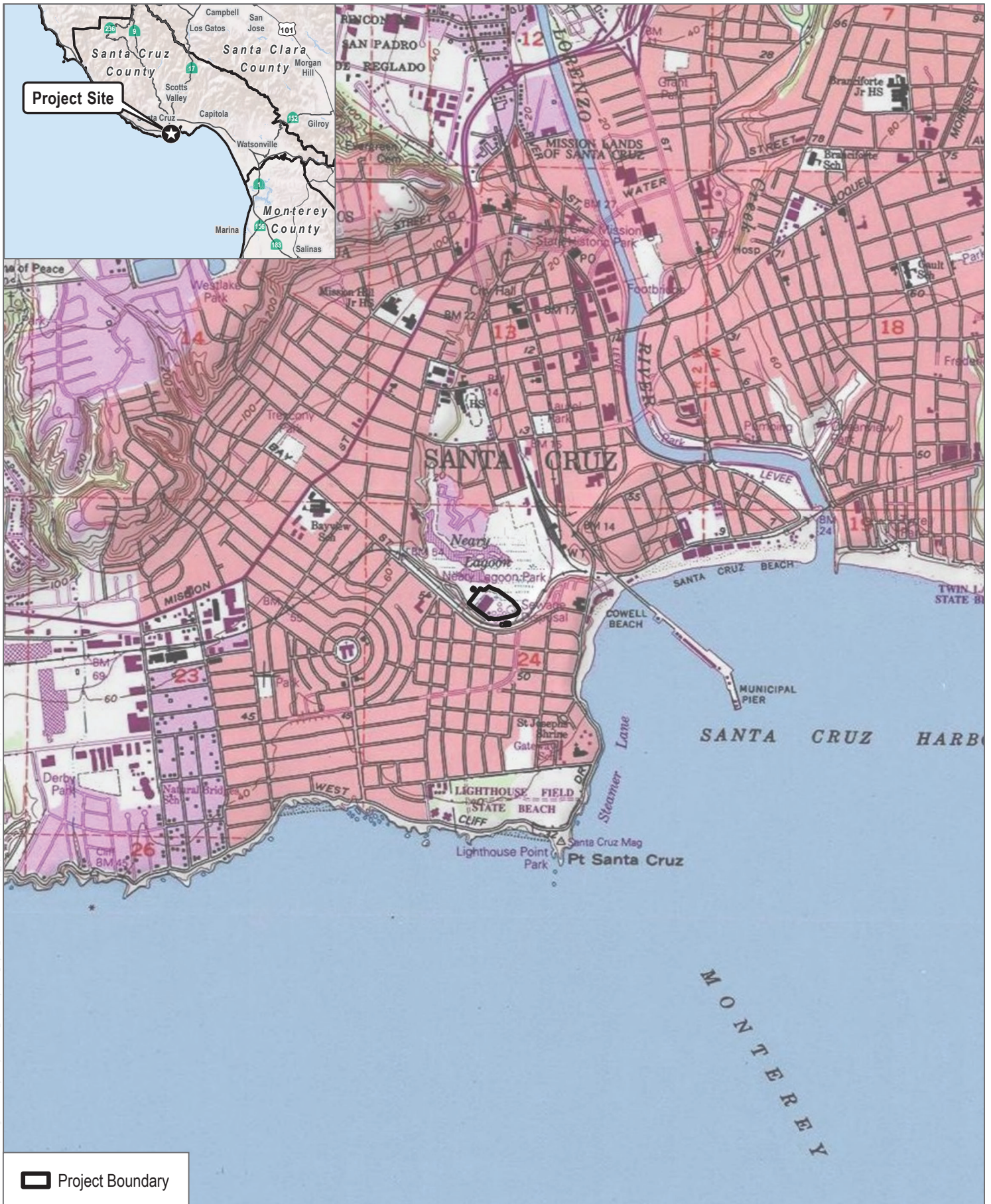
The client is proposing to complete upgrades to improve the safety, reliability, and maintainability of the electrical system, such that it can continue to support WWTF operations. The Project includes replacement of the WWTF electrical distribution infrastructure (main service entrance, substations, switchgears, electrical cabling, standby generators), as well as completing the electrical system loop, which requires the installation of new cabling. The three existing standby generators with 1.8-megawatt (MW) capacity will likely be replaced with one generator with a 2.5-MW capacity.

As part of our study, we are consulting all regional historical organizations to determine if there are any known historic or cultural resources that may be affected by the Proposed Project. Your efforts in this process will provide invaluable information for the proper identification and treatment of such resources. If you have any information regarding known cultural resources in the Proposed Project area, please feel free to contact me via phone or email (listed below). All comments, emails, or letters received will be included in the reports generated by this study. Thank you for your time regarding our request.

Sincerely,

A handwritten signature in black ink that reads "Andrea Dumovich Heywood".

Andrea Dumovich Heywood
Architectural Historian
949.641.7152 // adumovichheywood@dudek.com
Att.: *Figure 1, Project Location*
cc: *Ann Sansevero, Dudek*



SOURCE: USGS National Map 2026

FIGURE 1
Project Location

From: [Andrea Dumovich Heywood](#)
To: ["felicia@santacruzmuseum.org"](mailto:felicia@santacruzmuseum.org)
Cc: [Ann Sansevero](#)
Subject: City of Santa Cruz Wastewater Treatment Plant Project
Date: Thursday, February 12, 2026 9:55:00 AM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)
[SCMNH Letter.pdf](#)

Hello Felicia,

I am reaching out today on behalf of Dudek and the City of Santa Cruz, Public Works Department, to provide you with some information about the City of Santa Cruz Wastewater Treatment Plant Project. As part of the cultural resources study for the proposed project, Dudek is consulting all regional historical organizations to determine if there are any known historic or cultural resources that may be within the proposed project area. Please see the attached letter and map for more information about the nature and location of the project, and please feel free to contact me should you have questions or information regarding cultural or historical resources in this area.

Thank you,
Andrea

Andrea Dumovich Heywood (she/her)
Architectural Historian

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Felicia Van Stolk, Executive Director
Santa Cruz Museum of Natural History
1305 E Cliff Drive
Santa Cruz, CA 95062

February 12, 2026

Subject: City of Santa Cruz Wastewater Treatment Plant Project

Dear Felicia Van Stolk,

Dudek has been retained by the City of Santa Cruz, Public Works Department (City), to complete cultural resources inventory and evaluation reports for the City of Santa Cruz Wastewater Treatment Plant Project (Proposed Project). The City is pursuing the Project to modernize and improve the electrical distribution system at the City's wastewater treatment facility (WWTF), which was constructed between circa 1948-2005, and is located south of Neary Lagoon Park, at 110 California Street, Santa Cruz, California (see Figure 1 enclosed).

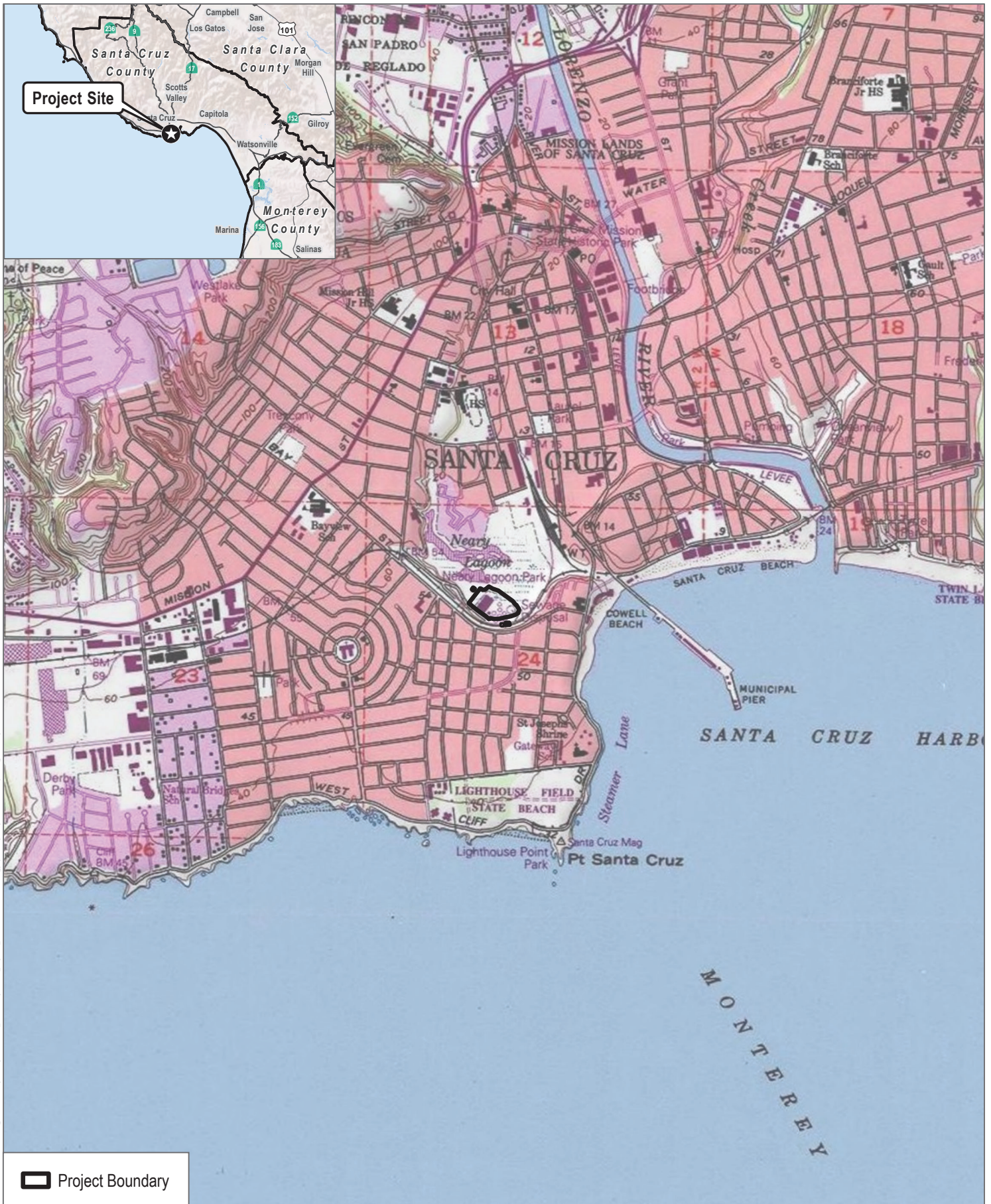
The client is proposing to complete upgrades to improve the safety, reliability, and maintainability of the electrical system, such that it can continue to support WWTF operations. The Project includes replacement of the WWTF electrical distribution infrastructure (main service entrance, substations, switchgears, electrical cabling, standby generators), as well as completing the electrical system loop, which requires the installation of new cabling. The three existing standby generators with 1.8-megawatt (MW) capacity will likely be replaced with one generator with a 2.5-MW capacity.

As part of our study, we are consulting all regional historical organizations to determine if there are any known historic or cultural resources that may be affected by the Proposed Project. Your efforts in this process will provide invaluable information for the proper identification and treatment of such resources. If you have any information regarding known cultural resources in the Proposed Project area, please feel free to contact me via phone or email (listed below). All comments, emails, or letters received will be included in the reports generated by this study. Thank you for your time regarding our request.

Sincerely,

A handwritten signature in black ink that reads "Andrea Dumovich Heywood".

Andrea Dumovich Heywood
Architectural Historian
949.641.7152 // adumovichheywood@dudek.com
Att.: *Figure 1, Project Location*
cc: *Ann Sansevero, Dudek*



SOURCE: USGS National Map 2026

FIGURE 1
Project Location

From: [Kathleen Aston](#)
To: [Andrea Dumovich Heywood](#)
Subject: re City of Santa Cruz Wastewater Treatment Plant Project
Date: Tuesday, February 17, 2026 4:23:29 PM

Hi Andrea,

Thank you for reaching out to us regarding cultural resources in this project area. We worked with your colleagues to curate fossils excavated from the Coastal Rail Trail, Segment 7, Phase II Project with the city of Santa Cruz. One of these was an extremely significant ground sloth specimen, and while I am still waiting on the final report, it appears to be from the area that would be impacted by the wastewater treatment plant project. Please let me know what additional information you would need from me in order to inform your report.

Best
Kathleen

--

Kathleen Aston | Curator
kathleen@santacruzmuseum.org
(831) 420-6115 | Tues-Fri
[She/Her/Hers](#)

Santa Cruz Museum of Natural History

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From: [Michael Williams](#)
To: [Kathleen Aston](#)
Cc: [Sarah Brewer](#); [Fallin Steffen](#); [Brooke Crumpton](#); [Sarah Siren](#); [Shawna Johnson](#); [Andrea Dumovich Heywood](#)
Subject: City of Santa Cruz Wastewater Treatment Plant Project
Date: Friday, February 27, 2026 12:33:10 PM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)

Hi Kathleen,

I hope this email finds you well! I am following up on the email that Andrea sent you on regarding cultural resources in the vicinity of the above referenced project and an update on the Rail Trail monitoring report. We are aware of the WWTP project proximity to the Rail Trail fossil discoveries and are incorporating those findings into our report. I am slowly wrapping up the Rail Trail monitoring report and will send you the taxonomic listing of species by early next week and hopefully, the full monitoring report in the ensuing weeks.

Thank you for your patience and have a great weekend!

Mike

Michael Williams, PhD
Paleontologist

DUDEK

O: 225 892 7622

dudek.com



Appendix B

California Department of Parks and
Recreation 523 Forms

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary# P-44-001254- UPDATE
HRI #
Trinomial

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UPDATE

*Recorded by: Fallin Steffen, Dudek *Date: January 30, 2026 ☐ Continuation ☒ Update

*NRHP Status Code 6Z

P1. Other Identifier: Map IDs 1 through 30

***P3a. Description:**

This Update DPR 523 form supplements the original recordation and evaluation of the Santa Cruz Wastewater Treatment Facility (WWTF) property, which was previously recorded (P-44-001254) in 2017 by Johanna Kahn of ESA (ESA 2017). The facility elements previously evaluated by ESA include Map IDs 1 through 7 in Table 1 below. Since 2017, multiple components of the plant that had not previously reached the 45-year threshold for historic consideration have now attained this age. As a result, the entire facility, including these newly eligible elements, is evaluated in this DPR Update (Map IDs 1 through 30) in Table 1 below.

Table 1. Buildings and Structures Associated with the Santa Cruz WWTF

Map ID	Name/Use	Year Built	Evaluation Status
1	Digester 2	1948	6Y
2	Digester 3	1948	6Y
3	Nonpotable Water Tank	1948	6Y
4	Process Control/ Administration Building	1965, addition 1988	6Y
5	Primary Sedimentation Structure	1965, addition 1968– 1988	6Y
6	DAFT 1	1965	6Y
7	Influent Pump Station	1965	6Y
8	Maintenance Building	1968–1982, addition 1988	Previously unevaluated
9	Primary Digester 1	c. 1982	Previously unevaluated
10	Thickener 2	c. 1982	Previously unevaluated
11	Digester 4	1988	Previously unevaluated
12	Electrical Building	1988	Previously unevaluated
13	Digester 5	c. 1988–1998	Previously unevaluated
14	Cogeneration	c. 1988–1998	Previously unevaluated
15	Solids Dewatering Building	c. 1988–1998	Previously unevaluated
16	Preaeration Grit Structure	c. 1988–1998	Previously unevaluated
17	Effluent Pumping Station	c. 1988–1998	Previously unevaluated
18	UV Filtration	c. 1988–1998	Previously unevaluated
19	Locker and Garage Building	c. 1993	Previously unevaluated
20	Metering and Switch Unit	c. 1993	Previously unevaluated
21	Trickling Filters 1–6	c. 1993–2005	Previously unevaluated
22	RSS and TFE Channels	c. 1993–2005	Previously unevaluated

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Table 1. Buildings and Structures Associated with the Santa Cruz WWTF

Map ID	Name/Use	Year Built	Evaluation Status
23	Secondary Clarifier Structure 1	c. 1993–2005	Previously unevaluated
24	Secondary Clarifier Structure 2	c. 1993–2005	Previously unevaluated
25	Secondary Clarifier Structure 3	c. 1993–2005	Previously unevaluated
26	Odor Control System	c. 1998–2005	Previously unevaluated
27	Effluent Filtration	c. 1998–2005	Previously unevaluated
28	Laboratory	c. 1998–2005	Previously unevaluated
29	(Secondary) Administration Building	c. 2005	Previously unevaluated
30	UV Disinfection Building	c. 2005	Previously unevaluated

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P5a. Photograph or Drawing (Photograph required for buildings, structures, and objects.)



P5b. Description of Photo:
(View, date, accession #) Photo
1. Overview of the Santa Cruz
WWTF, view looking south.
1/30/2026.(DSCN_0175)

***P6. Date Constructed/Age
and Sources:**

☒ Historic ☐ Prehistoric ☐
Both

c. 1928 - 2005/ Source: ESA
2017 and historic aerials
(NETR 2026)

***P8. Recorded by:** (Name,
affiliation, address)
Fallin Steffen, MPS
Dudek
725 Front Street, Suite 400
Santa Cruz, CA 95060

***P9. Date Recorded:**
January 30, 2026

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") Dudek. 2026. *Built Environment Inventory and Evaluation Report: Wastewater Treatment Facility Upgrades Project, City of Santa Cruz, California*. Prepared for City of Santa Cruz, Public Works Department.

***Attachments:** ☒ Location Map ☒ Continuation Sheet ☒ Sketch Map ☒ Other (List): ESA. 2017. Department of Parks and Recreation Primary Record for the Santa Cruz Wastewater Treatment Facility. P-44-001254. On file, Dudek, Santa Cruz, California.

***B5. Architectural Style:** Utilitarian style with some elements of retrained Streamline Moderne details

***B6. Construction History:** (Construction date, alterations, and date of alterations) See Continuation Sheet.

***B10. Significance:** Theme N/A Area: N/A
Period of Significance N/A Property Type N/A Applicable Criteria N/A

See Continuation Sheet.

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*Date: January 30, 2026

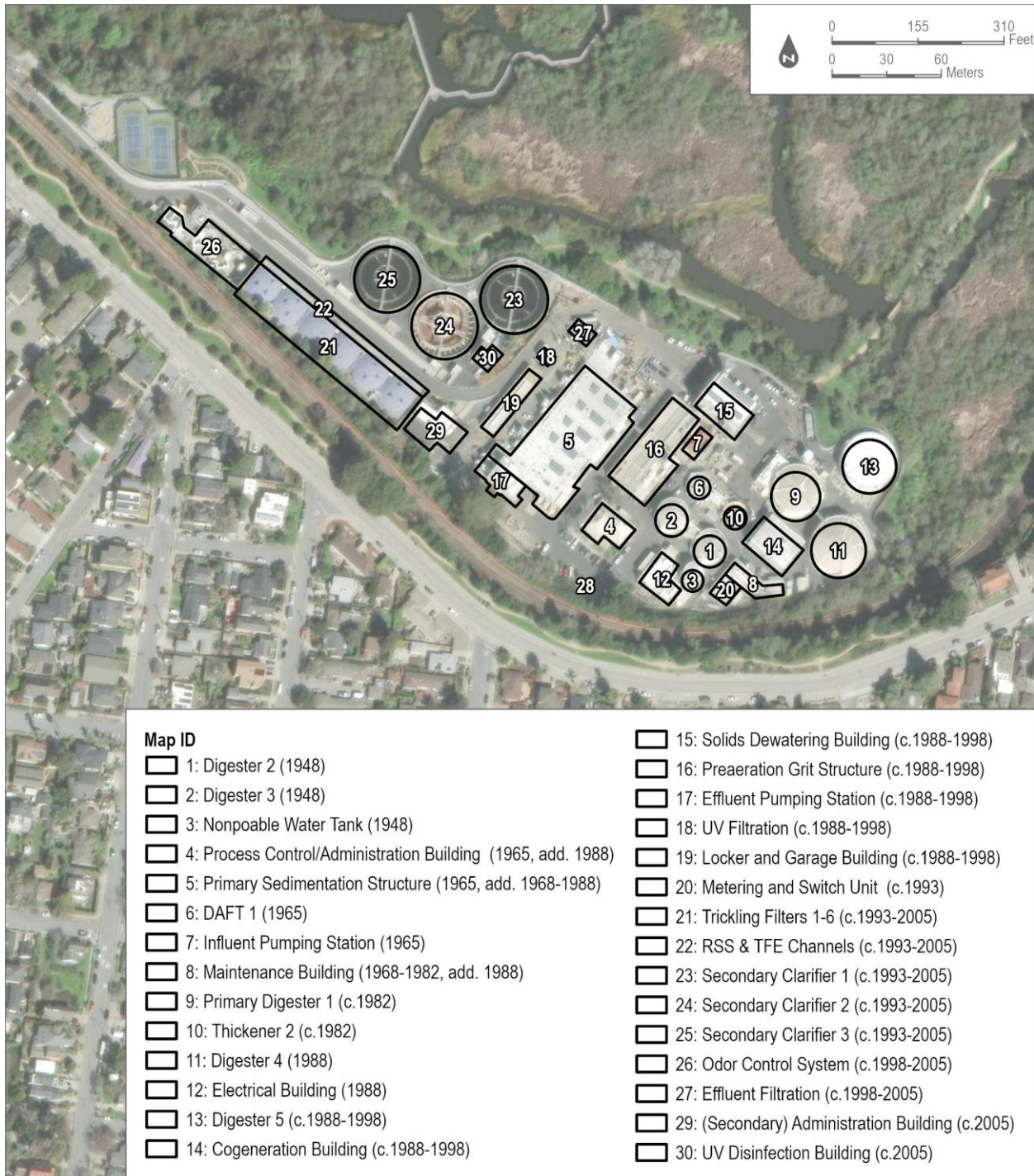


Continuation



Update

P5a. Photograph or Drawing



State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

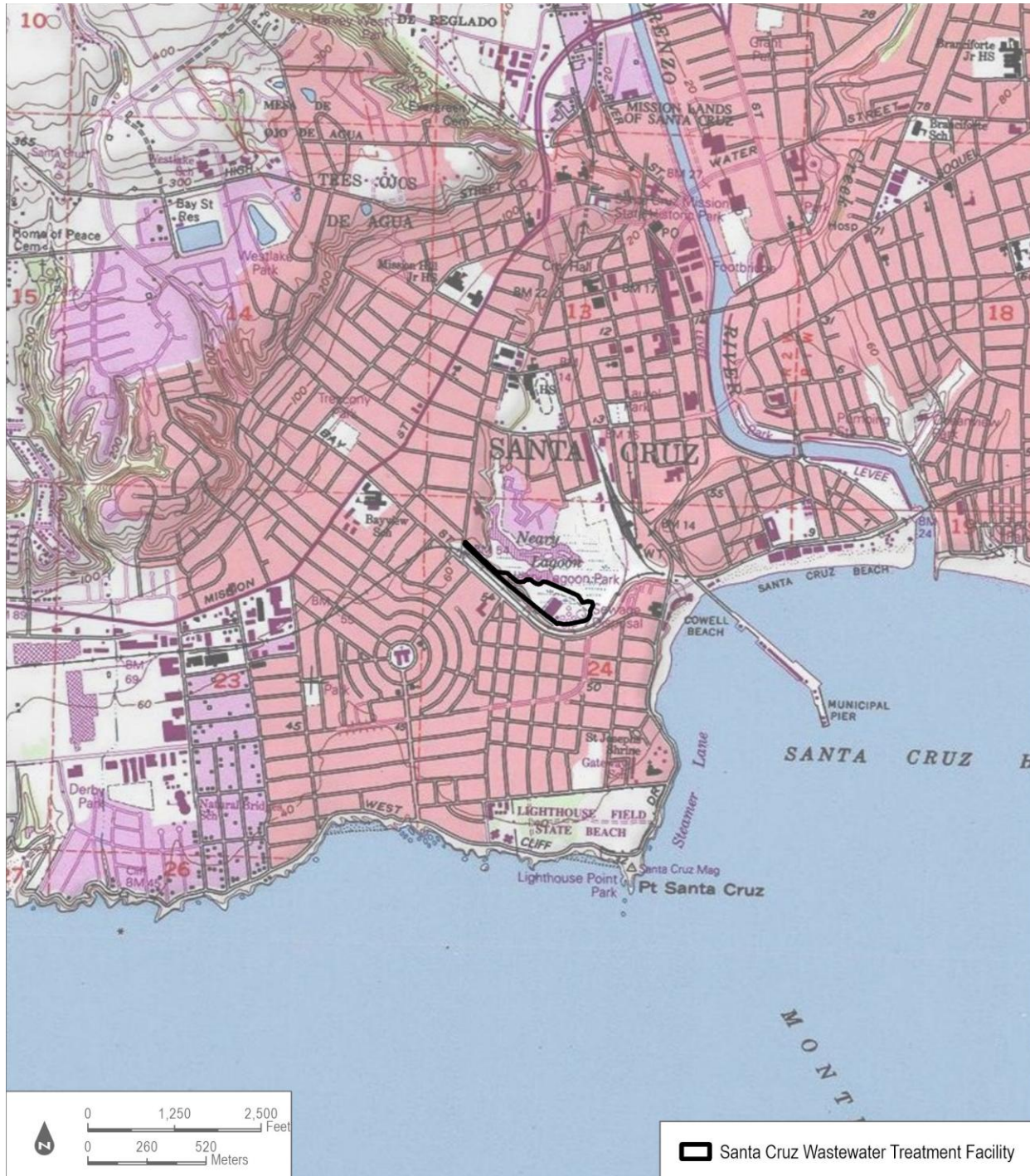
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CONTINUATION SHEET

*B6. Construction History:

The following text provides a summary of subsequent modifications to the WWTF following its initial completion in 1948. The following list of modifications is quoted in its entirety from the DPR 523 form set prepared in 2017 by ESA for the WWTF (ESA 2017: 2):

The earliest extant buildings were constructed in 1948. The consulting sanitary engineer was Harry N. Jenks of Palo Alto and the civil engineer was D.M. McPhetres of Santa Cruz.

- 1948: Digester 2 (old primary digester, extant), Digester 3 (old secondary digester, extant) and connecting control house (extant); water tank (old vacuator, extant); old pump house (demolished after 1988)
- Ca. 1965: Process Control/Administration building (extant, enlarged after 1988); Influent Pumping Station (extant); south part of Primary Sedimentation Structure (extant); DAFT 1 (extant)
- Ca. 1968-1988: North part of Primary Sedimentation Structure (extant); Primary Digester 1 (extant), Locker and Garage Building (extant), Metering and Switch Unit (extant), Thickener 2 (extant)
- Ca. 1988-1998: Digesters 4 and 5 (extant); Cogeneration (extant); Solids Dewatering Building (extant); Preaeration Grit Structure (extant); Effluent Pumping Station (extant), UV Filtration (extant)
- Ca. 1998-2005: Secondary Clarifiers 1, 2, and 3 (extant); Laboratory (extant); Trickling Filters (extant); Odor Control System (extant), Effluent Filtration (extant)

The following list includes corrections to the above list cited from ESA's 2017 DPR regarding site modifications:

- Primary Digester 1 was constructed c. 1982 and not c. 1968–1988 (NETR 2026).
- Thickener 2 was constructed c. 1982 and not c. 1968–1988 (NETR 2026).
- A 1982 historical aerial shows the Locker and Garage Building was not constructed at that time. A Brown and Caldwell 1985 plan set also confirms it was not extant that year. The building first appears in a 1993 aerial and therefore has a build date of c. 1993 (NETR 2026).
- A 1982 historical aerial shows the Metering and Switch Unit was not constructed at that time, and a 1983 plan notes that it was planned for construction that year. It first appears in historical aerials by 1993 and therefore has a build date of c. 1993 (NETR 2026).

The following list of additional modifications was compiled from a review of as-built plans and specifications provided by the City (City of Santa Cruz Public Works Department 1983; Brown and Caldwell and Harvey & Stanley Associates, Inc. 1985; Brown and Caldwell 1992; Carollo Engineers 2001; SimplexGrinnell 2003; City of Santa Cruz Public Works Department 2008, 2010a, 2010b, 2017; Black & Veatch and Soquel Creek Water District 2021; RRM Design Group 2022):

- 1983 City of Santa Cruz Public Works Department—Enclosure for Switch and Meter Housing, new building construction plans.
- 1985 Brown and Caldwell (consulting engineers) and Harvey & Stanley Associates, Inc. (Ecological Consultants)—Wastewater Treatment Plant Modifications: Administration Building, Influent Pump Station, Sludge Thickener 1, Primary Sludge Digester 1, Secondary Sludge Digester 3, Non-Potable Water Tank, and Tunnel Portal Box. Conceptual Revegetation Plan.
- 1992 Brown and Caldwell (consultants)—Secondary Treatment Facility alterations.
- 2001 Carollo Engineers—Odor Control Phase 2 Project.
- 2003 SimplexGrinnell (contractor)—Fire protection: Added lams for monitoring of tamper and flows throughout facility, ran conduit next to sprinkler pipe for connection of tamper and flows, pull wire through conduit for connection, and Mapnet and 24VDC being pulled to all devices.
- 2008 City of Santa Cruz Public Works Department—Replacement of Digester #5 Gas Compressors.

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- 2010 City of Santa Cruz Public Works Department:
 - Digester 5—Heat Loop Piping.
 - 54" Effluent Pump Pipeline Repair.
- 2017 City of Santa Cruz Public Works Department—Bioassay Laboratory Project.
- 2021 Black & Veatch and Soquel Creek Water District—Treatment Facilities Project: includes alterations to the Primary Sedimentation Tanks north elevation and to the adjacent structure to the northwest.
- 2022 RRM Design Group—Rail Trail Segment 7 Phase 2: construction of a multi-use trail located along the Santa Cruz Branch Line Railroad (to the south of the WWTF).

***B10. Significance (continued):**

Historic Context

The following historic context is from Dudek's 2026 report, *Built Environment Inventory and Evaluation Report: Wastewater Treatment Facility Upgrades Project, City of Santa Cruz, California*. Additional contexts, including a historical overview of the City of Santa Cruz, and a Brown and Caldwell context, are located in the report.

Water Management in the City of Santa Cruz (1860s-1970s)

As water management techniques were being applied to a variety of industries throughout the County, the successful technologies developed and used in early natural resource harvesting, such as flumes and pumps, prompted local residents in the City of Santa Cruz to consider why these were not being put to use for the benefit of drinking water.

Beginning in the 1860s, acute cyclical water shortages and pollution prompted the development of several for-profit water systems in Santa Cruz. By the end of the 1880s, the two surviving major water companies, F.A. Hihn Water Works and the Santa Cruz Water Company, were joined into a single private business that competed with the City's new municipal water system that began in 1890 for almost three decades before being purchased by the City and integrated into the municipal system in 1916.

During the 1880s, the rising price of these fee-based water systems like the F.A. Hihn Water Works and the Santa Cruz Water Company prompted the City to explore its own, City-owned, public water option. After several disappointing attempts to acquire an existing system of water works, the City revised its approach and began planning to build a diversion system and storage reservoir, prompting the development of the first municipal water project in Santa Cruz: the Laguna Creek Dam and the Cowell Reservoir. This project led the way for other ambitious water system development in the City, including several other North Coast stream diversions and the first pumping plant on the San Lorenzo River. In 1916, the City acquired the rights to the Santa Cruz Water Company and began to tie in the systems as one, forming the basis of the modern City system used today.

Fredrick Hihn passed away in 1913 and his ownership of the Santa Cruz Water Company passed to his children. The City seized the opportunity to acquire the Santa Cruz Water Company system, and in 1916 assumed full legal ownership of the entire system, which included right to water being drawn from Branciforte Creek, Carbonera Creek, Majors Creek, and the San Lorenzo River (SCWD n.d.: 2; Monterey American 1913: 7; Santa Cruz Evening News 1914: 1).

Public development during the period of 1918–1939 was predominantly focused on the repair and upgrade of existing system components. Although upgrades and additions were added to the several major facilities to increase the ability to store and improve the overall quality of municipal water during this period, with projects such as the Bay Street Reservoir in 1924 and the New Crossing Street Pumping Plant in 1929, the output was not widely increased between 1917 and 1930. Service began expanding into the areas to the east outside of the City with focused initiatives like the East Side Water Extension during this period (Brown and Dunlap 1956: 1–2).

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Many of the post-war water projects in Santa Cruz can be characterized as repair of existing infrastructure and expansion of the overall water system to support rapid population growth. The years following World War II provoked westward migration and an increase in birth rates, causing the population of California to increase from 6.95 million to 10.65 million between 1940 and 1950. In Santa Cruz, the growth of the community from 27,430 to 41,680 between 1940 and 1950 caused the common seasonal water shortages during dry months to become problematic in regard to growth and potential for community expansion (SCPL n.d.: 1).

In 1945, the state recognized a water shortage in Santa Cruz and authorized an investigation of available water resources. In 1946, the acute nature of the water crisis prompted the community to request a survey to determine an inventory of the available groundwater supply and plan for growth in the future. Completed in 1948, the survey determined that although the San Lorenzo pumping plant was running at full capacity, 24 hours per day during the dry summer of 1947, the river was so low that the entire run was being diverted through the pumps and into the City mains for consumption (SWRCB 1953: 57; Brown and Dunlap 1956: 1-2).

Prompted by these concerns, in 1953 the State Water Resources Control Board released a report that inventoried available surface and underground water sources in the County and projected increased water utilization that exceeded the available water in Pajaro Valley, the Soquel Creek area, and the coastal area around and including Santa Cruz. The report identified requirements for supplemental water for Santa Cruz and areas served by the Santa Cruz City Water Department (SWRCB 1953: 57).

The County formed the Santa Cruz County Flood Control and Water Conservation district in 1955 and hired Creegan & D'Angelo Civil Engineers in 1956 to complete an extensive survey identifying dam sites, groundwater sources, and additional steps to improve control of the water supply throughout the County to compete with the City's proposals. The report asserted that population growth was a major concern for the water supply in the City because "the City of Santa Cruz has current water requirements which equal the capacity of the existing water supply system during a relatively dry era. Should an exceptionally dry season be experienced, there would be a serious water shortage in the City of Santa Cruz" (Creegan & D'Angelo 1957: 8).

Present supplies were determined to be insufficient for standard rates of population growth, including years that rainfall was considered more plentiful. Despite the rate of water consumption in the service area tripling between the mid-1930s and mid-1950s, there were no additions to the municipal water supply during that time. Creegan & D'Angelo would also serve as the engineers for the Santa Cruz County Flood Control and Water Conservation District Advisory Committee, and ultimately, their recommendation to the council to remedy the current water crisis in the City was a dam on Newell Creek (Santa Cruz Sentinel 1953: 1, 1954: 1, 1958: 4).

A number of general obligation and revenue bonds helped to fund a wide range of water-related projects in Santa Cruz during this period, including routine maintenance and transmission line replacements, but also projects such as the Graham Hill Treatment Plant (1959), Newell Creek Dam (1960), the Tait Street Diversion (1961), and the Felton Diversion Station (1976). The need for these projects was driven by the need for more water to support a growing, post-war population, but the use of bonds allowed for flexibility to project for future growth. In 1974, the Santa Cruz Sentinel surmised that "successful bond issues in 1958, 1963 and in 1967 reflected public confidence in the water administration and a recognition of the needs for more water, apparently, for there was relatively little difficulty getting approval" (Santa Cruz Sentinel 1974: 1-2).

Development of the Santa Cruz Wastewater Treatment Facility (1928-Present)

Early Development

The following section concerning the early development of the subject property is quoted in its entirety from the California Department of Parks and Recreation (DPR) 523 form set prepared in 2017 by ESA for the WWTF (ESA

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2017: 9):

The following history of wastewater treatment in the City of Santa Cruz is an excerpt from the 1973 Draft Environmental Impact Statement for the Treatment Facility Expansion and Interceptor Construction in the City of Santa Cruz:

Construction of sanitary sewers in Santa Cruz began in the 1880s when the population was about 4,000. By 1917, about $\frac{3}{4}$ of the city was sewered by a gravity system emptying into the San Lorenzo River and Monterey Bay. Because of the attractive bathing beaches in the area, this disposal method was unsatisfactory and in 1925 a comprehensive study was made of sewage collection and disposal. By 1928, essential parts of a waste water system with a treatment plant located at Neary's Lagoon were completed. In 1963, [engineering firm Brown and Caldwell] was hired to survey the whole drainage area. While the survey was underway, the Regional Water Quality Control Board noted that the City's treatment plant was not meeting existing requirements and prepared an "Order to Cease and Desist." A three stage construction was envisioned with the first stage to consist of a larger treatment plant with trunk sewers and tunnel outfall. This system was to meet the Board's requirements. In addition to contracts, 30 additional acres in Neary's Lagoon and 56 easements for the trunk sewers and outfall were acquired. This was accomplished in 1966.

The 1928 Sanborn map shows that a "city sewer pumping station" existed in the approximate location of the modern-day Neary Lagoon Public Tennis Courts. The sewer plant included a 1 $\frac{1}{2}$ -story-over-basement wood-frame pumping station building with a circular sewer well, sewer pumps, boilers, and an incinerator. The 1928-1950 Sanborn map shows that the sewer plant had been demolished and a new "City of Santa Cruz Sewer Pumping Plant" had been constructed in the location of the modern-day water treatment facility near the intersection of Bay and Liberty streets. Constructed in 1948, the plant was composed of two circular reinforced concrete tanks with a one-story control house connecting the tanks (Digesters 2 and 3, extant), a pre-existing pump house with a Greek-cross plan (shown as the chlorination station in a 1988 drawing and demolished sometime after that year), a circular vacuator (non-potable water tank, extant), and a one-story brick auto garage (demolished ca. 1952). The plant underwent a "primary upgrade" in 1965. Several new buildings are visible in a 1968 aerial photo, and these were located to the north and west of the 1948 plant. These include the pump house, the administration building (process control), and the southern portion of the primary sedimentation tanks (all extant). In 1985, the current outfall was completed. A 1993 aerial photo reveals that more buildings had been constructed since 1968. These include the primary digestion tanks, the solids dewatering building, the bar screen room, the grit removal tank, the UV filtration building, and the northern portion of the primary sedimentation tanks (all extant). The facility underwent an advanced primary upgrade in 1988 and a full secondary upgrade in 1998. A 2005 aerial photo shows that the most recent phase of construction on the plant included the effluent filtration building, the secondary clarifier tanks, the odor control system, the trickling filter building, and the solids contact tanks (all extant).

The wastewater treatment facility was not included in the 1976 Santa Cruz Historic Building Survey by Charles Hall Page & Associates of San Francisco. At that time, the oldest buildings on the property were 28 years old.

Santa Cruz Wastewater Facilities Improvements Plan

In 1980, the City of Santa Cruz Department of Public Works, the Santa Cruz County Sanitation District, and EPA Region IX developed the Santa Cruz Areawide Wastewater Facilities Plan. This plan outlined the City's approach to ensuring compliance with the Federal Water Pollution Control Act Amendments of 1972 and the California Ocean Plan adopted in 1972. The following highlights are summarized from the Final Environmental Impact Statement (EIS)

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and Report: Santa Cruz Wastewater Facilities Plan, April 1980 (EPA 1980: 5-6, 8, 9, 11, 13):

- The City and County of Santa Cruz began planning for the Santa Cruz Wastewater Facilities Improvements plan in October 1975, in which Brown and Caldwell were contracted to prepare the plan.
- Two planning committees met between 1976-1978. The first product of the planning effort was the Central Coastal Water Quality Control Plan (CCWQCP), a document that discussed various options for wastewater management and offered recommendations and guidelines. Brown and Caldwell used the CCWQCP to help draft the facility plans which offered numerous alternatives for wastewater treatment, disposal, and reuse.
- Draft EIS/EIR public hearings began in 1979. The community at large could not agree with proposed wastewater disposal methods. Although water reclamation gained public support at the hearings, the City finalized its plans to exclude wastewater reclamation. The final plan noted the WWTF as a primary treatment facility with a 21-million-gallon per-day average capacity and an offshore discharge point approximately 2,000 feet or 1 mile into the Pacific Ocean.

As a result of these modifications, the WWTF was expanded from 7 million to 21 million gallons per day and modernized its facilities. A \$2,986,500 federal grant helped fund the project, along with a state grant of \$1,357,500, and City funds. The modernization focused on treating solids so that the wastewater discharge would not contaminate the ocean (Santa Cruz Sentinel 1973: 2). Ultimately, the project was completed in three phases:

- Phase 1 (completed in 1988) extended the wastewater pipeline to the ocean.
- Phase 2 (completed in 1991) improved the filtration system overall. By 1991, the WWTF functioned with more efficient filters that contributed to safer and cleaner oceans. Mayor Don Lane stated, "This is not just a waste treatment plant, it's a water pollution control facility" (Santa Cruz Sentinel 1991: 2).
- Phase 3 (completed c. 1996) expanded the plant into the adjacent Neary Lagoon Park by adding a second filtering system that removed 95% of floating particles from wastewater (Santa Cruz Sentinel 1991: 2).

WWTF Present Functions

The following section is quoted in its entirety from the DPR 523 form set prepared in 2017 by ESA for the WWTF (ESA 2017: 9):

The following description of the modern-day functions of the Santa Cruz Wastewater Treatment Facility is an excerpt from *Waste Discharge Requirements Order No. R3-2010-0043* (2010):

The [City of Santa Cruz] owns and operates a wastewater collection, treatment, and disposal system which provides sewerage service for the City of Santa Cruz and areas of the Santa Cruz County Sanitation District. [...] The collection system comprises 145 miles of gravity sanitary sewer lines, 4.2 miles of force main, and 21 pump stations, all of which discharge untreated municipal wastewater to the treatment plant. The treatment plant also treats dry weather flows from Neary Lagoon, septage from unsewered areas, and grease trap pumping. [...] The treatment plant comprises screening, aerated grit removal, primary sedimentation, biological tower trickling filters, solids contact stabilization, and secondary clarification, and disinfection with ultraviolet light. Biosolids are processed by anaerobic digestion and centrifuge dewatering. Stabilized solids are transported to Merced County and applied to farmlands. Methane gas produced by anaerobic digestion is used to generate power and heat the treatment plant's digesters. Treated wastewater is discharged through a 12,250- foot outfall/diffuser system to Monterey Bay.

The Santa Cruz Wastewater Treatment Facility has received the following awards and accolades in

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recent years: Plant of the Year 2013 in its size category (California Wastewater Environment Association, CWEA); Monterey Bay Section Award in 2013, 2012, 2004, and 2003 (CWEA); and recognized as one of the nation's leading green power users in 2013 and 2012 (U.S. Environmental Protection Agency).

Results of Identification and Evaluation Efforts

To assess the property's historical significance and integrity, the Santa Cruz WWTF was recorded and evaluated in consideration of City of Santa Cruz Historic Resource Inventory (CSCHRI) designation criteria and integrity requirements. A physical description of the property and its development history is provided below. The property was previously evaluated for the NRHP and CRHR in 2017 and was found ineligible for listing under NRHP and CRHR criteria and SHPO concurred with those findings (ESA 2017; Ref # EPA_2020_0731_001). Therefore, the evaluation below only addresses CSCHRI eligibility criteria. The property significance evaluation was prepared by Dudek Architectural Historian Andrea Dumovich Heywood, MHC, who meets the Secretary of the Interior's Professional Qualification Standards for architectural history. The complete 2017 evaluation by ESA is attached to this DPR.

The Santa Cruz Wastewater Treatment Facility (1948-Present)

The Santa Cruz WWTF located in the City of Santa Cruz, was originally designed by civil engineer Daniel M. McPhetres in 1948 and consisted of three extant buildings: Digester 2 (known as the old primary digester), Digester 3 (known as the old secondary digester) with the connecting control house, and Water Tank (known as the old vacuator). The old pump house, also designed by McPhetres, was demolished after 1988. The engineering firm Brown and Caldwell designed the remaining buildings and structures on the facility beginning in the 1960s through present day. The plant presently contains the extant elements listed in Table 1 and illustrated on the sketch map on page 4 of this DPR.

The WWTF contains a number of different functional elements and buildings spread across five parcels totaling 10.55 acres. The features of the site include Digesters 2 and 3 circular buildings, a Water Tank, a Process Control/Administration Building, a Primary Sedimentation Structure, a Dissolved Air Flotation Thickener concrete building, and an Influent Pump Station building.

Descriptions of the Digesters, Water Tank, Process Control/Administration Building, Primary Sedimentation Structure, Dissolved Air Flotation Thickener, and an Influent Pump Station can be found in the DPR 523 form set prepared in 2017 by ESA for the WWTF (ESA 2017: 3-4). Updated photos taken by Dudek are provided below:

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Photograph 2. Digesters 3 (left) and 2 (right), view looking northeast (IMG_11627).



Photograph 3. Water Tank, view looking northwest (IMG_11639).



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Photograph 4. Process Control/Administration Building, view looking northeast (IMG_11637).



Photograph 5. Primary Sedimentation Structure, view looking southwest (DSCN_0210).



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Photograph 6. DAFT 1, view looking north (IMG_11630).



Photograph 7. Influent Pump Station, view looking west (DSCN_0190).



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In addition to the elements described by ESA in 2017, which were completed during the initial phases of WWTF development, the following WWTF elements discussed below [Map IDs 8 through 30] were not included in the 2017 DPR because they were not age-eligible. They are now 45 years or older, and are described briefly below as part of this study.

Maintenance Building, 1968–1982, addition 1988 [Map ID 8]

The Maintenance Building (Photograph 8) is located in the southeast section of the WWTF, just southwest of the Cogeneration Building. It is a one-story building with an irregular-shaped plan and has corrugated metal exterior with several roll-down vehicular doors.

Photograph 8. View of Maintenance Building, view looking southeast (DSCN_0139).



Primary Digester 1, c. 1982 [Map ID 9]

The Primary Digester 1 building (Photograph 9) is located in the eastern section of the WWTF, just north of the Cogeneration Building. Although the ESA 2017 DPR notes the build date as c. 1968–1988, historical aerials clearly show Primary Digester 1 constructed by 1982 (NETR 2026). The building features a circular plan with a rectangular-shaped control room to the west. Primary Digester 1 and the control room are clad in smooth concrete. Horizontal grooves wrap around the digester's circular exterior and recessed arches are placed at each elevation of the control room along with metal security doors. A set of metal exterior stairs leads to the top of the control room and farther to the top of the digester, where metal railings wrap around the rim of the digester's roof. A metal walkway connects Digester 1 to Digester 4.

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Photograph 9. View of Primary Digester 1, view looking northwest (DSCN_0182).



Thickener 2, c. 1982 [Map ID 10]

The Thickener 2 building (Photograph 10) is located in the eastern section of the WWTF, just southwest of Primary Digester 1. Although the ESA 2017 DPR 523 form notes the build date as c. 1968–1988, historical aerials clearly show Thickener 2 constructed by 1982 (NETR 2026). The building features a circular plan clad in concrete with short concrete wing walls evenly spaced throughout its exterior. Metal railings wrap around the rim of the digester's roof and a metal walkway connects Thickener 2 to the central building between Thickener 1 and DAFT 1 to the west.

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Photograph 10. View of Thickener 2, view looking north (DSCN_0165).



Digester 4, 1988 [Map ID 11]

The Digester 4 building (Photograph 11) is located in the eastern section of the WWTF, just southwest of Digester 5. The building features a circular plan clad in concrete. Metal railings wrap around the rim of the digester's roof and a metal walkway connects Digester 4 to Primary Digester 1 to the northwest.

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Photograph 11. View of Digester 4, view looking southwest (DSCN_0198).



Electrical Building, 1988 [Map ID 12]

The Electrical Building (Photograph 12) is located in the southeast section of the WWTF, just south of Digester 3, and at the location of the original pumping station from 1928 that has since been demolished. The building features an L-shaped plan with a concrete exterior. Metal railings wrap around the roof's edge. A corrugated metal shed with three automobile roll-down doors is attached to the building's west elevation.

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Photograph 12. View of Electrical Building, view looking east (IMG_11638).



Digester 5, c. 1988–1998 [Map ID 13]

Digester 5 (Photograph 13) is located in the northeast section of the WWTF, just north of Digester 4. The building features a circular plan clad in smooth concrete with horizontal grooves that wrap around the digester's circular exterior. An exterior concrete staircase leads to the top of the digester and metal railings wrap around the rim of the digester's roof.

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Photograph 13. View of Digester 5, view looking east (DSCN_0197).



Cogeneration (c. 1988–1998) [Map ID 14]

Cogeneration (Photograph 14) is located in the eastern section of the WWTF, just south of Primary Digester 1. The building features a rectangular plan clad in corrugated metal. The building is externally connected to Primary Digester 1 by way of raised external pipes or a raised external walkway.

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Photograph 14. View of Cogeneration, view looking northeast (DSCN_0178).



Solids Dewatering Building (c. 1988–1998) [Map ID 15]

The Solids Dewatering Building (Photograph 15) is located in the northeastern section of the WWTF, just south of the Preaeration Grit Structure. The two-story building features a rectangular plan clad in concrete. The building is externally connected to the Preaeration Grit Structure.

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Photograph 15. View of the Solids Dewatering Building, view looking south (DSCN_0206).



Preaeration Grit Structure (c. 1988–1998) [Map ID 16]

The Preaeration Grit Structure (Photograph 16) is located in the eastern-center section of the WWTF, just south of the Solids Dewatering Building. The one-story building features a long rectangular plan clad in concrete. The building is externally connected to the Solids Dewatering Building and the Primary Sedimentation Tanks structure by way of raised external walkways.

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Photograph 16. View of the Preaeration Grit Structure, view looking south (DSCN_0207).



Effluent Pumping Station (c. 1988–1998) [Map ID 17]

The Effluent Pumping Station (Photograph 17) is located in the southern-center section of the WWTF, just southwest and connected to the Primary Sedimentation Tanks. The two-story building features an asymmetrical plan clad in concrete that is tiered with a one-story section to the east and a two-story section to the west.

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Photograph 17. View of the Effluent Plumping Station, view looking northwest (DSCN_0218).



UV Filtration (c. 1988–1998) [Map ID 18]

The UV Filtration structure (Photograph 18) is located in the center section of the WWTF, just north of the Locker and Garage Building. The UV Filtration structure was not available for recordation during field survey.

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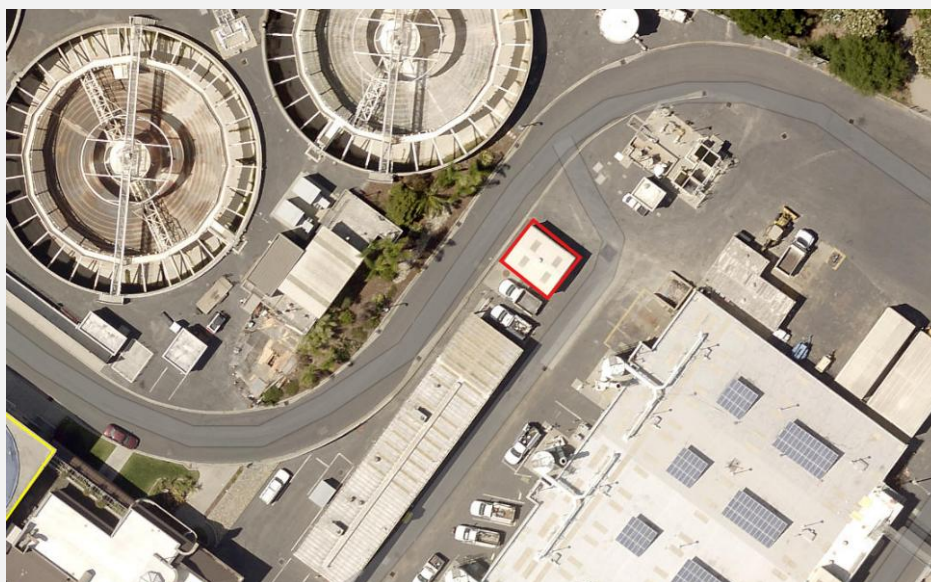


Continuation



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Photograph 18. Aerial view of the UV Filtration structure, outlined in red (source: Esri World Imagery 2025, modified by Dudek).



Locker and Garage Building (c. 1993) [Map ID 19]

The Locker and Garage Building (Photograph 19) is located in the center section of the WWTF, just west of the Primary Sedimentation Tanks. The one-story building features a long rectangular plan clad in corrugated metal with a nearly flat roof also clad in corrugated metal.

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Photograph 19. View of the Locker and Garage Building, view looking southeast (DSCN_0228).



Metering and Switch Unit (c. 1993) [Map ID 20]

The Metering and Switch Unit structure (Photograph 20) is located in the southeastern section of the WWTF, just south of and connected to the Maintenance Building. The one-story building features a rectangular plan clad in corrugated metal with a corrugated metal roof.

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Photograph 20. View of the Metering and Switch Unit structure, view looking north (DSCN_0148).



Trickling Filters 1–6 (c. 1993–2005) [Map ID 21]

The Trickling Filters 1–6 structure (Photograph 21) is located in the western section of the WWTF, just south of the Secondary Clarifiers. The multi-story Brutalist style structure features a long, rectangular plan clad in concrete and capped with six domes on the roof. The north elevation features a raised concrete platform accessible by multiple sets of concrete stairs, with multiple pairs of concrete cylinder support columns below an extended concrete roof with a broad concrete fascia.

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Photograph 21. View of Trickling Filters 1–6 structure, view looking west (DSCN_0239).



RSS and TFE Channels (c. 1993–2005) [Map ID 22]

The RSS and TFE Channels are located in the southwestern and southern sections of the WWTF, just below and underground the (Secondary) Administration Building. The channels are not visible above ground.

Secondary Clarifier Structures 1–3 (c. 1993–2005) [Map IDs 23–25]

The Secondary Clarifier Structures 1–3 (Photograph 22) are located in the northern section of the WWTF, just north of the Trickling Filters 1–6. The three structures each feature a circular basin structure clad in concrete with metal support beams throughout its interior. Metal walkways with metal railings stretch across each clarifier.

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Photograph 22. View of a Clarifier Structure, view looking north (DSCN_0230).



Odor Control System (c. 1998–2005) [Map ID 26]

The Odor Control System structure (Photograph 23) is located in the western section of the WWTF, just west of the Trickling Filters 1–6 structure. The structure features a system of metal pipes and concrete support structures.

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Photograph 23. Partial view of the Odor Control System, view looking southeast (DSCN_0254).



Effluent Filtration (c. 1998–2005) [Map ID 27]

The Effluent Filtration structure (Photograph 24) is located in the central-north section of the WWTF, just north of the UV Filtration structure. The Effluent Filtration structure was not available for recordation during field survey.

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Photograph 24. Aerial view of the Effluent Filtration structure, outlined in red (source: Esri World Imagery 2025, modified by Dudek).



(Secondary) Administration Building (c. 2005) [Map ID 29]

The (Secondary) Administration Building (Photograph 25) is located in the southwestern section of the WWTF, just east of and connected to the Trickling Filters 1–6 structure. The two-story Brutalist style building features an asymmetrical plan clad in concrete with metal frame windows, upper balconies, and several corrugated metal shed roofs.

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Photograph 25. View of the (Secondary) Administration Building, view looking southwest (DSCN_0238).



UV Disinfection Building (c. 2005) [Map ID 30]

The UV Disinfection Building (Photograph 26) is located in the central section of the WWTF, just east of the Secondary Clarifier 2 structure. The building features an asymmetrical plan that sits on a raised concrete foundation. It is clad in concrete with a partially scored design and features a shed roof with parapet and attached corrugated metal shed roof canopy to the southeast.

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Photograph 26. View of the UV Disinfection Building, view looking northeast (DSCN_0235).



Lastly, the 2017 ESA DPR noted a Laboratory (c. 1998–2005) [Map ID 27]; however, during the field survey, a laboratory was not identified. Review of all available site plans and maps did not reveal the structure.

Summary of the 2017 NRHP/CRHR Statement of Significance with Updated Analysis

Refer to the 2017 DPR by ESA for their full evaluation. The following is Dudek's updated evaluation:

NRHP/CRHR Criterion A/1

Dudek agrees with the previous NRHP/CRHR Criterion A/1 evaluation. Dudek further asserts that the additional buildings that have reached 45 years of age are also not eligible under NRHP/CRHR Criterion A/1: Maintenance Building (1968–1982, addition 1988), Primary Digester 1 (c. 1982), and Thickener 2 (c. 1982). All three buildings/structures are not associated with events that have made significant contributions to the broad patterns of our history. They were built several decades after the early WWTF was constructed in 1948, during the facility's expansion and modernization.

The subject property is not the first municipal wastewater facility in Santa Cruz City or County. The City's first municipal water project in Santa Cruz was the Laguna Creek Dam and the Cowell Reservoir dating to the 1880s. By 1916, the City acquired the rights to the Santa Cruz Water Company, forming the basis of the modern City system used today. Public development during the period of 1918–1939 was predominantly focused on the repair and upgrade of existing system components, including projects such as the Bay Street Reservoir in 1924 and the New Crossing Street Pumping Plant in 1929.

The subject WWTF was constructed in 1948 to address the growing City and County population. According to the

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2023 report Drinking Water and Wastewater Treatment Facilities in California Historic Context and Research Design for National Register Evaluation (JRP and AECOM 2023), the WWTF's initial development can be categorized into the later part of the "Era of Sanitary Engineering" period spanning from 1900–1949. During that time, there were swift sanitation technological and scientific advances, however, with few state regulations, "few municipalities constructed modern sewage treatment plants prior to World War II" (JRP and AECOM 2023: 63). The WWTF is a typical municipal sewage treatment facility constructed in the post-World War II era.

It has since been largely altered, expanded, and modernized. In the 1980s–1990s, the facility underwent a large-scale modernization project that was conducted in three phases to address environmental compliance and regulation. The modernization was typical for wastewater treatment plants and is not associated with an event that made a significant contribution to the broad patterns of history. The WWTF's expansion period can be categorized within JRP and AECOM's Era of Advanced Treatment context spanning from 1950 to c. 1980. During that time, "Environmentalism as a political force compelled higher standards of water and sewage treatment that were codified in state and federal law" (JRP and AECOM 2023: 154). WWTF's expansion is associated with a national trend that was facilitated by the need to comply with the Federal Water Pollution Control Act Amendments of 1972, in addition to complying with the California Ocean Plan, and adapting to the City's post-war population growth (EPA 1980: 5). Although associated with the environmental movement trend, it did not directly contribute to that movement in a major way or play a notable role that would deem it eligible under NRHP/CRHR Criterion A/1. The WWTF does not have a historic importance outside of fulfilling its ordinary role of sewage disposal as done by similar systems in numerous cities. The WWTF did not introduce or prove the efficacy of an important new technology, a public health measure, or an environmental treatment standards. It is not closely associated with the creation of a type of political organization such as the Santa Cruz Public Works Department, which itself has importance in comparison to earlier Santa Cruz municipal organizations. It also was not identified as having any important social or political connections. Therefore, for the reasons stated above, the WWTF does not meet NRHP/CRHR Criterion A/1.

NRHP/CRHR Criterion B/2

Dudek agrees with the previous NRHP/CRHR Criterion B/2 evaluation. Dudek further asserts that the additional buildings that have reached 45 years of age are also not eligible under NRHP/CRHR Criterion B/2: Maintenance Building (1968–1982, addition 1988), Primary Digester 1 (c. 1982), and Thickener 2 (c. 1982). All three buildings/structures are not known to be individually associated with the lives of persons significant in our past. No individual person was identified through research as being associated with any of the three buildings/structures.

The subject WWTF is not associated with the lives of persons significant in our past. The WWTF was constructed as a municipal project in the 1948, and was later modernized in the 1980s–1990s. The original construction and modernization are not associated with any one individual but rather with the City's engineering department and numerous governing bodies. As noted by JRP and AECOM (2023: 256), "[W]astewater systems do not commonly have strong, direct association with single individuals. They are instead usually the creation of municipal governments where credit and responsibility for the planning and construction of infrastructure are diffused among elected officials, city managers, and public works departments." Therefore, the WWTF does not meet NRHP/CRHR Criterion B/2.

NRHP/CRHR Criterion C/3

Dudek agrees with the previous NRHP/CRHR Criterion C/3 evaluation. Dudek further asserts that the additional buildings that have reached 45 years of age are also not eligible under NRHP/CRHR Criterion C/3: Maintenance Building (1968–1982, addition 1988), Primary Digester 1 (c. 1982), and Thickener 2 (c. 1982). All three buildings/structures are utilitarian in design and do not embody the distinctive characteristics of a type, period, or method of construction.

The subject WWTF was constructed in 1948 as a standard wastewater treatment facility with only a few structures.

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It has since been largely expanded and modernized to include several additional utilitarian buildings and structures that lack distinctive characteristics of a period, or method of construction, or represent the work of a master. Although they possess distinctive characteristics of a type of WWTF structure, they are not collectively or individually important examples within the context of the WWTF. The WWTF is not the earliest, best preserved, or rarest surviving example of its type. According to JRP and AECOM (2023: 257), “[M]any waste water systems followed standard designs that were widely constructed.” Designed by Brown and Caldwell, an engineering firm, they do not represent the work of a master or possess high artistic values. Brown and Caldwell specialize in water supply management and treatment projects, and in the design of sewer and water treatment infrastructure. The firm is not known as a master engineer or master architect. None of the buildings and structures that comprise the facility, including the Maintenance Building, Primary Digester 1, and Thickener 2, represent a significant and distinguishable entity whose components may lack individual distinction. Therefore, the WWTF does not meet NRHP/CRHR Criterion C/3.

NRHP/CRHR Criterion D/4

Dudek agrees with ESA’s evaluation of NRHP/CRHR Criterion D/4 in its entirety and has no additional edits or updates.

Conclusion

Dudek agrees with ESA’s conclusion that the WWTF does not meet any of the NRHP/CRHR criteria and is not eligible for listing in either the NRHP or CRHR. However, Dudek does not agree that the WWTF retains a high degree of integrity as it has been largely altered and expanded since its original construction in 1948 with the addition of numerous buildings and structures.

NRHP Criteria Consideration G

ESA’s 2017 DPR did not address NRHP Criteria Consideration G. The following is Dudek’s discussion of NRHP Criteria Consideration G:

The remaining WWTF elements are currently less than 50 years of age and do not appear to rise to a level of consideration under NRHP Criteria Consideration G. Nearly all elements less than 50 years old at the WWTF serve utilitarian functions. Moreover, research does not indicate that the WWTF has a significant association with any events or persons important in history, nor does research suggest that this property possesses design or construction value, or information potential that is not already known or available in the historical record. As such, it lacks the necessary level of exceptional importance to satisfy NRHP Criteria Consideration G for properties that have achieved significance within the last 50 years. Therefore, it was not addressed further within this study.

CSCHRI Statement of Significance

1. Recognized as a significant example of the cultural, natural, archaeological, or built heritage of the city, state, or nation

The design of the WWTF is a conventional wastewater treatment facility and does not constitute a significant example of cultural, natural, archaeological, or built heritage of the city, state, or the nation. As such, it does not rise to the level to be called significant. For this reason, the property does not appear eligible under City Criterion 1.

2. Associated with a significant local, state, or national event

Archival research did not find any associations with events that have made a significant contribution to the broad patterns of local or regional history. While the WWTF was developed in 1948 during a period of infrastructure and utility expansion throughout Santa Cruz, and later modernized in the 1980s–1990s, it is not associated with any

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specific significant local, state, or national event. Therefore, the property does not appear eligible under City Criterion 2.

3. Associated with a person or persons who significantly contributed to the development of the city, state, or nation

Archival research did not find any associations with a person or persons who significantly contributed to the development of the city, state, or nation. For this reason, the property does not appear eligible under City Criterion 3.

4. Associated with an architect, designer, or builder whose work has influenced the development of the city, state, or nation

The WWTF is a conventional example of a wastewater treatment facility designed by civil engineer Daniel M. McPhetres in 1948, and later expanded by civil engineers Brown and Caldwell in the 1960s–present. Brown and Caldwell were responsible for the design of many water treatment facilities in the western United States and, as such, their contribution to the City of Santa Cruz is marginal at best. The WWTF is not associated with an architect, designer, or builder whose work has influenced the development of Santa Cruz, the state, or the nation. Therefore, for the reasons stated above, the property does not appear eligible under City Criterion 4.

5. Recognized as possessing special aesthetic merit or value as a building with quality of architecture and that retains sufficient features showing its architectural significance

The WWTF is a conventional example of a wastewater treatment facility, the design of which does not demonstrate the use of innovative, ground-breaking technology in the field of wastewater treatment, nor does it demonstrate a high quality of architecture that possesses any special aesthetic merit or value. For this reason, the property does not appear eligible under City Criterion 5.

6. Recognized as possessing distinctive stylistic characteristics or workmanship significant for the study of a period, method of construction, or use of native materials

The WWTF is a ubiquitous example of a wastewater treatment facility built from conventional, mass-produced materials during the mid-twentieth century. As such, it does not contain any particular distinctive stylistic characteristics or evidence of workmanship that could yield information about a particular period or method of construction. For these reasons, the property does not appear eligible under City Criterion 6.

7. Retains sufficient integrity to accurately convey its significance

Upon conclusion that the WWTF does not meet any of the required criteria for significance, the facility's current state of integrity is inconsequential. For this reason, the property does not appear eligible under City Criterion 7.

Integrity Discussion

National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation (NPS 1997) states that the integrity of a property is based upon the historical significance and character-defining features of that property, and that “only after significance is fully established can you proceed to the issue of integrity.” Upon the conclusion that the WWTF does not meet any of the required criteria for significance, the facility's current state of integrity is inconsequential. As such, no assessment of integrity is provided in this evaluation.

Conclusion

The subject property was evaluated in consideration of NRHP, CRHR, and CSCHRI criteria. As a result of the evaluation, the WWTF is recommended ineligible for inclusion in the NRHP, CRHR, and CSCHRI.

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No historical resources or historic properties were identified as a result of archival research, a NWIC records search, field survey, and significance evaluations. The subject property is not currently listed in any national, state, or local registers. In 2017, the WWTF was previously recorded and evaluated by ESA under the NRHP and CRHR and it was recommended as not meeting any of the significance criteria. This previous evaluation received concurrence on August 28, 2020, from SHPO (Ref # EPA_2020_0731_001). ESA did not include an evaluation under CSCHRI.

Dudek evaluated the resource in accordance with Section 15064.5 (a)(2)-(3) of the CEQA Guidelines using the criteria outlined in Section 5024.1 of the California Public Resources Code and found that the one resource (WWTF) is not considered a historical resource for the purposes of CEQA. The recommended California Historical Resource Status Code for the WWTF is 6Z.

***B14. Evaluator:** Andrea Dumovich Heywood, MHC, Dudek

***Date of Evaluation:** February 27, 2026

***B12. References:**

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State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

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HRI #

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CONTINUATION SHEET

Primary# P-44-001254- UPDATE

HRI #

Trinomial

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UPDATE

***Resource Name or #** (Assigned by recorder) Santa Cruz Wastewater Treatment Facility –

***Recorded by:** Fallin Steffen, Dudek

***Date:** January 30, 2026

☐

Continuation

☒

Update

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State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #

HRI #

Trinomial

NRHP Status Code

Other Listings

Review Code

Reviewer

Date

Page 1 of 10

*Resource Name or #: Santa Cruz Wastewater Treatment Facility

P1. Other Identifier:

*P2. Location: ☐ Not for Publication ☒ Unrestricted

*a. County: Santa Cruz

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

*b. USGS 7.5' Quad:

Date:

T

R

1/4 of

1/4 of Sec

M.D.

B.M.

City: Santa Cruz

Zip: 95060

c. Address: 110 California Street

d. UTM: Zone: ; mE/ mN (G.P.S.)

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) Elevation:

The boundaries APN # 004-331-02 correspond to the original property lines shown in the 1948 "Sewage Treatment Plant Plot Plan & Index" (see Continuation Page 5). The modern-day facility also occupies parts of APN # 004-331-03, -05, and -06 and 004-321-08.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

The subject property is a campus of industrial buildings that comprise a wastewater treatment facility in the City of Santa Cruz. The property occupies an area north of Bay Street between West Cliff Drive on the east, the Santa Cruz Branch Line Railroad on the south, California Street on the west, and Neary Lagoon Park on the north. All buildings were constructed at a lower elevation than Bay Street, and the campus is mostly hidden from view at the level of surrounding streets. All vehicular traffic enters the property by an access road from California Street. The entire property is paved with asphalt. The campus was built in several phases between 1948 and ca. 2000, and extant buildings are of reinforced concrete construction.

(Continued on Page 3)

***P3b. Resource Attributes:** HP9. Public utility building

*P4. Resources Present: ☒ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5a. Photo or Drawing



P5b. Description of Photo:
Digester tanks 2 and 3, looking northwest, ESA 2017

***P6. Date Constructed/Age and Sources:**

☒ Historic ☐ Prehistoric ☐ Both
Ca. 1948-2005

***P7. Owner and Address:**

City of Santa Cruz
809 Center Street
Santa Cruz, CA 95060

***P8. Recorded by:** (Name, affiliation, and address)
Johanna Kahn / ESA
550 Kearny Street, Suite 800
San Francisco, CA 94108

***P9. Date Recorded:** 2/17/2017

***P10. Survey Type:** (Describe)
Intensive

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.")

None

*Attachments: ☐ NONE ☐ Location Map ☐ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record
☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record
☐ Artifact Record ☐ Photograph Record ☐ Other (List):

DPR 523A (1/95)

*Required information

State of California — The Resources Agency
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Primary #
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BUILDING, STRUCTURE, AND OBJECT RECORD

Page 2 of 10

*NRHP Status Code

*Resource Name or # Santa Cruz Wastewater Treatment Facility

B1. Historic Name: None

B2. Common Name: Santa Cruz Wastewater Treatment Facility

B3. Original Use: Wastewater treatment plant

B4. Present Use: Same

*B5. **Architectural Style:** Utilitarian with restrained Streamline Moderne details

*B6. **Construction History:** The earliest extant buildings were constructed in 1948. The consulting sanitary engineer was Harry N. Jenks of Palo Alto and the civil engineer was D.M. McPhetres of Santa Cruz.

1948: Digester 2 (old primary digester, extant), Digester 3 (old secondary digester, extant) and connecting control house (extant); water tank (old vacuator, extant); old pump house (demolished after 1988)

Ca. 1965: Process Control/Administration building (extant, enlarged after 1988); Influent Pumping Station (extant); south part of Primary Sedimentation Structure (extant); DAFT 1 (extant)

Ca. 1968-1988: North part of Primary Sedimentation Structure (extant); Primary Digester 1 (extant), Locker and Garage Building (extant), Metering and Switch Unit (extant), Thickener 2 (extant)

Ca. 1988-1998: Digesters 4 and 5 (extant); Cogeneration (extant); Solids Dewatering Building (extant); Preaeration Grit Structure (extant); Effluent Pumping Station (extant), UV Filtration (extant)

Ca. 1998-2005: Secondary Clarifiers 1, 2, and 3 (extant); Laboratory (extant); Trickling Filters (extant); Odor Control System (extant), Effluent Filtration (extant)

*B7. **Moved?** ☒No ☐Yes ☐Unknown **Date:** N/A

Original Location: N/A

*B8. **Related Features:** none

B9a. Architect: D.M. McPhetres (civil engineer, 1948 buildings)

b. Builder: unknown

*B10. **Significance: Theme:** N/A

Area: Santa Cruz

Period of Significance: 1948-1965

Property Type: Public Utility

Applicable Criteria: N/A

(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

(Continued on page 8)

B11. Additional Resource Attributes: none

*B12. **References:**

See page 10

B13. Remarks: none

*B14. **Evaluator:** Johanna Kahn, ESA
550 Kearny Street, Suite 800
San Francisco, CA 94108

(This space reserved for official comments.)

(Sketch Map with north arrow required.)



Source: Google Maps, 2017. Edited by author.

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary #
HRI #
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*Resource Name or #: Santa Cruz Wastewater Treatment Facility

*Recorded by Johanna Kahn

*Date March 2017

☒ Continuation

☐ Update

***P3a. Description: (continued from page 1)**

Digesters 2 and 3 are identical circular buildings connected by a one-story, reinforced concrete control house (constructed in 1948). The digesters are clad in smooth concrete, and horizontal and vertical grooves are spaced at regular intervals around the buildings' exterior walls. A concrete staircase with a metal handrail is attached to Digester 2 on its southwest side. It provides roof access to both Digester 2 and the water tank immediately to the south. Another concrete staircase is attached to Digester 3 on its northeast side and provides roof access to Digester 3. At the roof level, metal handrails are located around the circumference of both digesters. The connecting control house is clad in painted concrete. It features industrial sash windows on its north and south façades, and the south façade also includes a pair of flush metal doors. The south façade terminates in a series of three horizontal grooves at the roofline. A one-story addition is located on the south side of the control house where it adjoins Digester 3. The addition is constructed of concrete masonry unit walls, features one industrial sash window and a pair of partially glazed flush doors, and is capped by a shed roof with composition shingles.

The **water tank** (formerly the vacuator, constructed in 1948) is a circular concrete building located directly south of Digester 2. The building is set on a raised concrete curb and has few distinguishing features. A horizontal groove runs around the center of the tank, and the façade terminates in a simple horizontal band at the roofline. A flush metal door is located at the north side of the tank. A metal staircase with a metal handrail is attached to the south side of the tank and provides roof access. A metal staircase at the roof level connects the water tank to Digester 2.

The **process control/administration building** (constructed in 1965, enlarged after 1988) is located directly west of Digester 3. Small landscaped areas are located around the building's perimeter. It is a one-story building with an L-shaped plan and a hipped, standing-seam metal roof. The north façade features a recessed entry with a glazed aluminum door, three multi-light steel-sash windows, and a metal overhang that provides covered parking for small vehicles. The east façade features a partially-glazed flush metal door and a concrete addition with a flush metal door.

The **Primary Sedimentation Structure** is located directly west of the process control/administration building and was constructed in two phases. The south part was built in 1965, and the north part was built ca. 1968-1988. It is a one-story building with an irregularly-shaped plan. It is clad in smooth concrete, and a horizontal groove runs along the building's perimeter near the roofline. The primary (east) façade features groupings of one, two, and three arched recesses. Some recesses are blank walls. Several contain single steel-sash windows, and others contain single and double glazed aluminum doors. A metal staircase with a metal handrail near the southeast corner of the building provides roof access; a metal handrail is located around the perimeter of the building at the roof level. A metal-frame roof structure was recently constructed at the southeast corner of the building. (It is shown in a 2017 aerial photo, but not in a 2013 aerial photo.) The roof covers a raised concrete platform that is accessed by concrete stairs.

Dissolved Air Flotation Thickener (DAFT) 1 (constructed in 1965) is a circular concrete building located directly north of Digester 3. Short concrete wing walls abut the building on its south side, and the building terminates in a round metal roof that is secured to the building with large clamps. A metal handrail is located around the circumference of the roof. Immediately to the east of DAFT 1 is a one-story rectangular building (constructed after 1968). Roof access to DAFT 1 is from a staircase attached to this building.

(Continued on Page 4)

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*Resource Name or #: Santa Cruz Wastewater Treatment Facility

*Recorded by Johanna Kahn

*Date March 2017

☒ Continuation

☐ Update

***P3a. Description (continued from page 3)**

The **Influent Pump Station** (constructed in 1965) is located directly north of DAFT 1. It is a one-story building with a rectangular floor plan and a hipped roof with red roof tiles. The building is clad in smooth concrete and painted metal panels with large metal vents around the perimeter of the building. The south façade of the building features a pair of flush doors with vents.

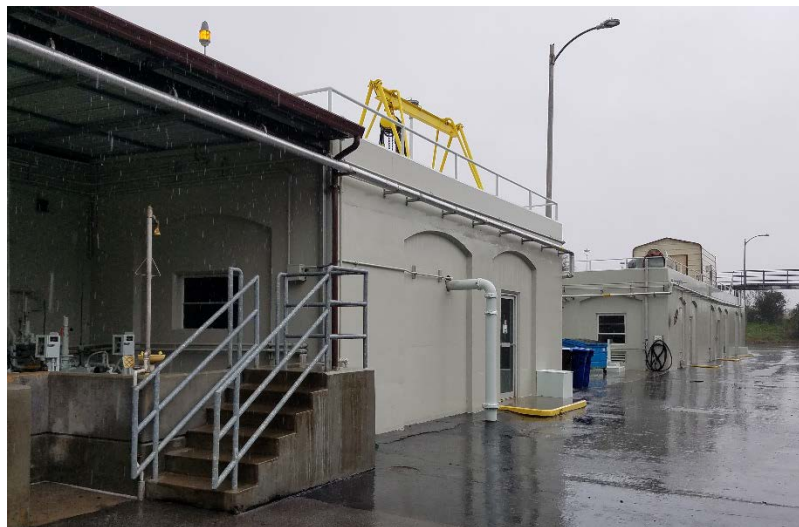
The buildings discuss above are all those present on the property that are historic age (50 years old or older). No other buildings were surveyed.



Water Tank: north façade, looking southeast.



Process Control/Administration: north façade, looking south.



Primary Sedimentation Structure: east façade, looking north.
1965 construction in foreground, ca. 1968-88 construction in background.

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☐ Update

*P3a. Description (continued from page 4)



DAFT 1: south façade, looking north.



Influent Pump Station: south façade, looking north.

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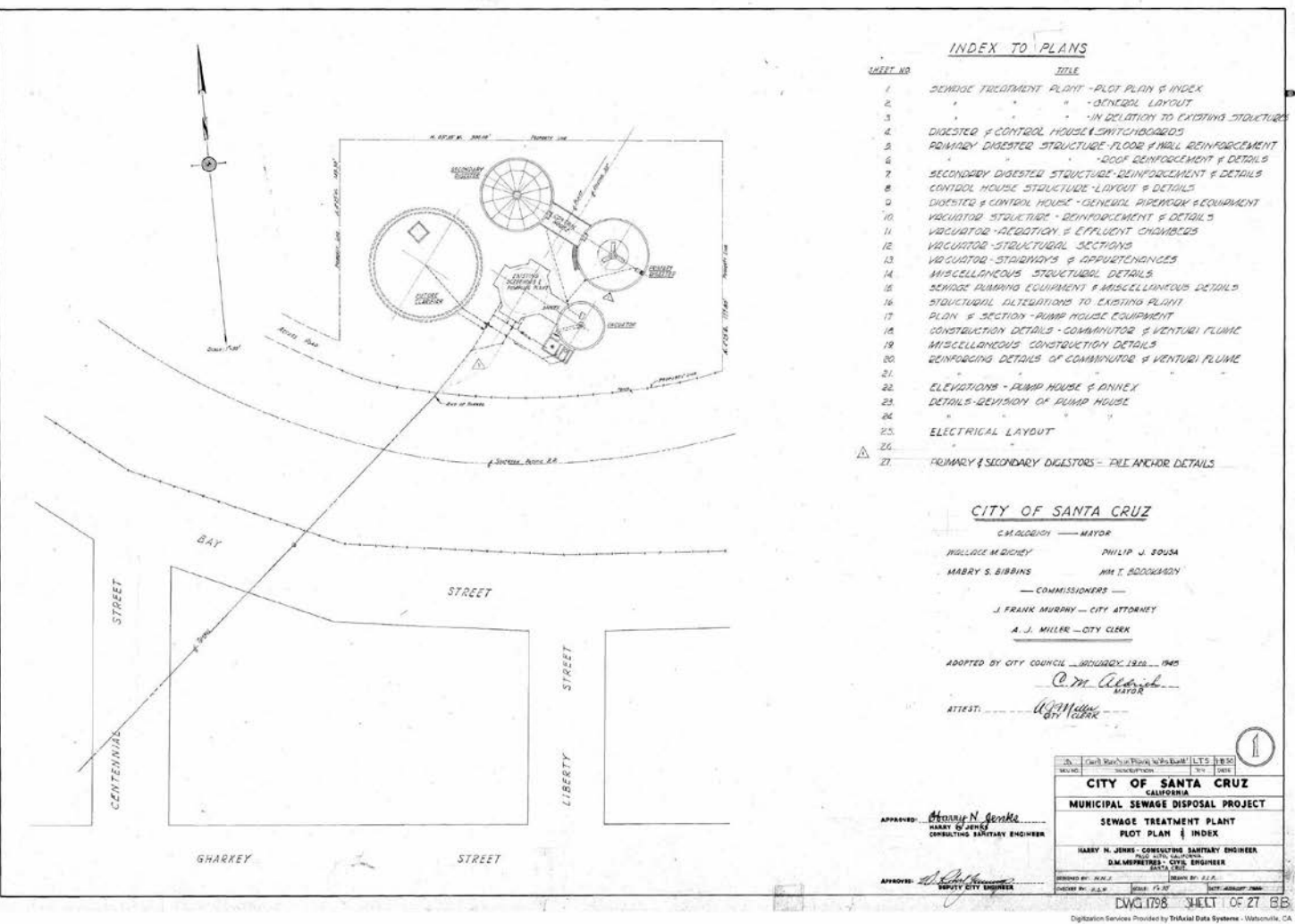
*Resource Name or #: Santa Cruz Wastewater Treatment Facility

*Recorded by Johanna Kahn

*Date March 2017

☒ Continuation ☐ Update

*P3a. Description (continued from page 5)



1948 Sewage Treatment Plant Plot Plan & Index (Drawing No. 1798, Sheet 1 of 27). Provided by City of Santa Cruz.

DPR 523L (1/95)

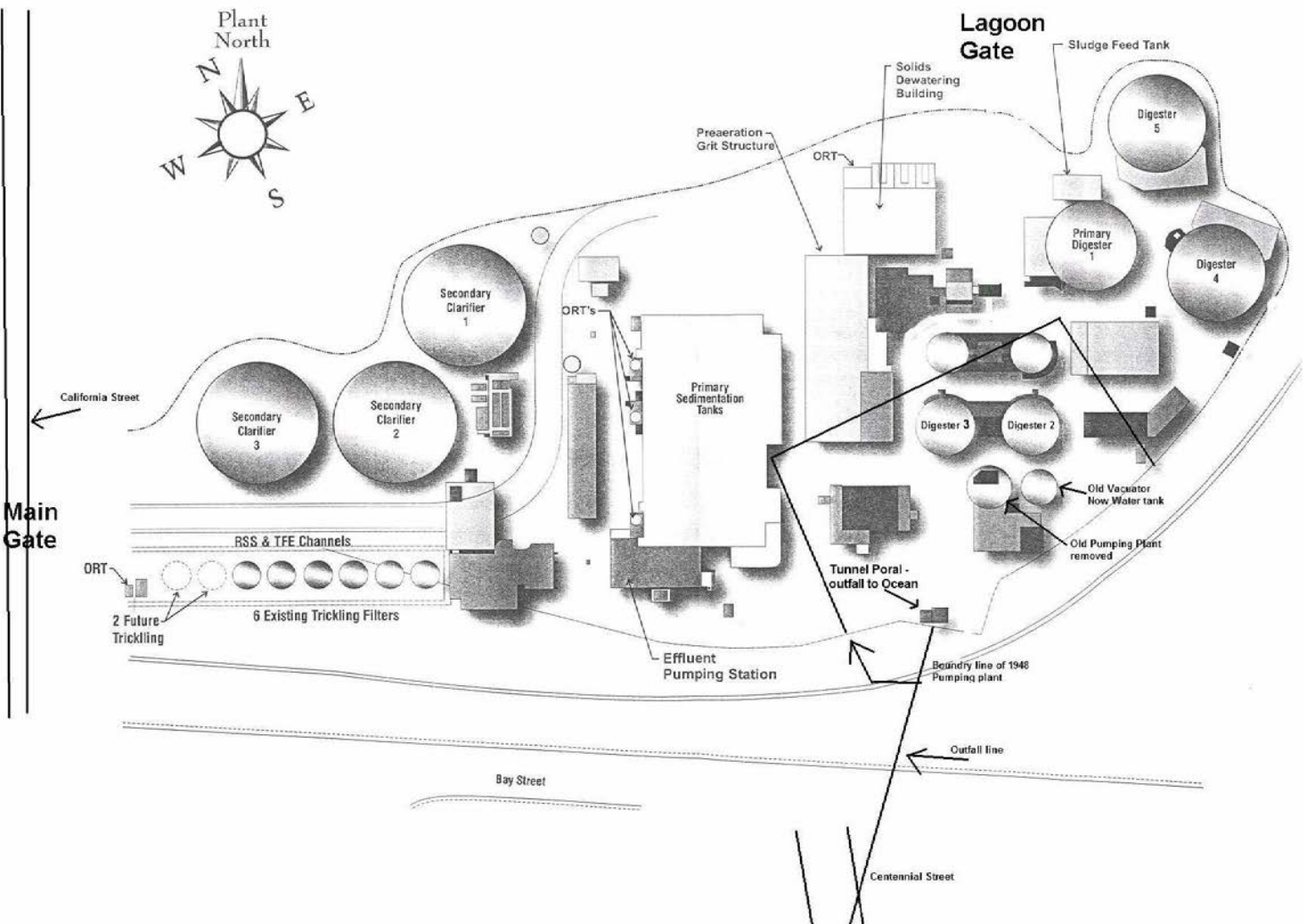
*Required information

***P3a. Description (continued from page 6)**



1988 Existing Site Plan (Drawing No. G2, Sheet 2D), Provided by City of Santa Cruz.

***P3a. Description (continued from page 7)**



2017 Plant Overview. Provided by City of Santa Cruz.

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***B10. Significance (continued from page 2)**

The following history of wastewater treatment in the City of Santa Cruz is an excerpt from the 1973 *Draft Environmental Impact Statement for the Treatment Facility Expansion and Interceptor Construction in the City of Santa Cruz*:

Construction of sanitary sewers in Santa Cruz began in the 1880s when the population was about 4,000. By 1917, about $\frac{3}{4}$ of the city was sewered by a gravity system emptying into the San Lorenzo River and Monterey Bay. Because of the attractive bathing beaches in the area, this disposal method was unsatisfactory and in 1925 a comprehensive study was made of sewage collection and disposal. By 1928, essential parts of a waste water system with a treatment plant located at Neary's Lagoon were completed. In 1963, [engineering firm Brown and Caldwell] was hired to survey the whole drainage area. While the survey was underway, the Regional Water Quality Control Board noted that the City's treatment plant was not meeting existing requirements and prepared an "Order to Cease and Desist." A three stage construction was envisioned with the first stage to consist of a larger treatment plant with trunk sewers and tunnel outfall. This system was to meet the Board's requirements. In addition to contracts, 30 additional acres in Neary's Lagoon and 56 easements for the trunk sewers and outfall were acquired. This was accomplished in 1966.

The 1928 Sanborn map shows that a "city sewer pumping station" existed in the approximate location of the modern-day Neary Lagoon Public Tennis Courts. The sewer plant included a 1 ½-story-over-basement wood-frame pumping station building with a circular sewer well, sewer pumps, boilers, and an incinerator. The 1928-1950 Sanborn map shows that the sewer plant had been demolished and a new "City of Santa Cruz Sewer Pumping Plant" had been constructed in the location of the modern-day water treatment facility near the intersection of Bay and Liberty streets. Constructed in 1948, the plant was composed of two circular reinforced concrete tanks with a one-story control house connecting the tanks (Digesters 2 and 3, extant), a pre-existing pump house with a Greek-cross plan (shown as the chlorination station in a 1988 drawing and demolished sometime after that year), a circular vacuator (non-potable water tank, extant), and a one-story brick auto garage (demolished ca. 1952). The plant underwent a "primary upgrade" in 1965. Several new buildings are visible in a 1968 aerial photo, and these were located to the north and west of the 1948 plant. These include the pump house, the administration building (process control), and the southern portion of the primary sedimentation tanks (all extant). In 1985, the current outfall was completed. A 1993 aerial photo reveals that more buildings had been constructed since 1968. These include the primary digestion tanks, the solids dewatering building, the bar screen room, the grit removal tank, the UV filtration building, and the northern portion of the primary sedimentation tanks (all extant). The facility underwent an advanced primary upgrade in 1988 and a full secondary upgrade in 1998. A 2005 aerial photo shows that the most recent phase of construction on the plant included the effluent filtration building, the secondary clarifier tanks, the odor control system, the trickling filter building, and the solids contact tanks (all extant).

The wastewater treatment facility was not included in the 1976 *Santa Cruz Historic Building Survey* by Charles Hall Page & Associates of San Francisco. At that time, the oldest buildings on the property were 28 years old.

The following description of the modern-day functions of the Santa Cruz Wastewater Treatment Facility is an excerpt from *Waste Discharge Requirements Order No. R3-2010-0043* (2010):

The [City of Santa Cruz] owns and operates a wastewater collection, treatment, and disposal system which provides sewerage service for the City of Santa Cruz and areas of the Santa Cruz County Sanitation District. [...] The collection system comprises 145 miles of gravity sanitary sewer lines, 4.2 miles of force main, and 21 pump stations, all of which discharge untreated municipal wastewater to the treatment plant. The treatment plant also treats dry weather flows from Neary Lagoon, septage from unsewered areas, and grease trap pumping. [...] The treatment plant comprises screening, aerated grit removal, primary sedimentation, biological tower trickling filters, solids contact stabilization, and secondary clarification, and disinfection with ultraviolet light. Biosolids are processed by anaerobic digestion and centrifuge dewatering. Stabilized solids are transported to Merced County and applied to farmlands. Methane gas produced by anaerobic digestion is used to generate power and heat the treatment plant's digesters. Treated wastewater is discharged through a 12,250- foot outfall/diffuser system to Monterey Bay.

The Santa Cruz Wastewater Treatment Facility has received the following awards and accolades in recent years: Plant of the Year 2013 in its size category (California Wastewater Environment Association, CWEA); Monterey Bay Section Award in 2013, 2012, 2004, and 2003 (CWEA); and recognized as one of the nation's leading green power users in 2013 and 2012 (U.S. Environmental Protection Agency).

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***B10. Significance (continued from page 9)**

Evaluation

An ESA architectural historian evaluated the property for its potential historical significance under California Register of Historical Resources Criteria 1 through 4 and the National Register of Historic Places Criteria a through d below. While the campus as a whole was investigated, only the historic-age buildings that fit into the period of significance were evaluated. The buildings that were evaluated are Digesters 2 and 3, the water tank, the process control/administration building, the Primary Sedimentation Structure, DAFT 1, and the Influent Pump Station. The majority of the buildings on the campus are less than 50 years old and are not age-eligible to be considered for listing in the California and National Registers.

Criterion 1/a (Events). The Santa Cruz Wastewater Treatment Facility provides necessary public services, and it is not exceptional or significant for the role that it plays in Santa Cruz and the surrounding area. The facility won several awards and recognitions in the last 15 years, but not enough time has passed to gain a historical perspective on those events. Other water treatment plants in California predate the subject property, including the 1895 filtration plant at Lake Chabot in Castro Valley, which was the first and "long the most important" on the Pacific Coast. Prior to the 1920s, large-scale filtration plants had been used by larger cities in the eastern United States for decades, but California had focused on smaller scale local water distribution. Research does not suggest that the subject property contributed to broad patterns of local or regional history or the cultural heritage of California or the United States, and for this reason it is not recommended eligible for listing under Criterion 1/a.

Criterion 2/b (People). Research did not reveal that the subject property is associated with any people who were/are important to local, California, or national history. Numerous people were involved in the design and construction of the wastewater treatment plant, and numerous others have been employed there over the years. However, none of these individuals has made specific contributions to history that have been identified and documented as associated with this property. For these reasons, the property is not recommended eligible for listing under Criterion 2/b.

Criterion 3/c (Architecture). The oldest buildings on the subject property (Digesters 2 and 3 and the water tank) were designed in a simple utilitarian architectural style with restrained Streamline Moderne details. The Primary Sedimentation Structure, parts of which date from 1965 and ca. 1968-1988, was also designed in a utilitarian style. Even though the Streamline Moderne style had come to its popular end around 1950, this building exhibits some elements associated with Streamline Moderne, presumably in order to appear harmonious with the earlier buildings. It must be emphasized that the style of these buildings is not Streamline Moderne; rather the buildings are designed in a utilitarian style (meaning that the design is dictated primarily by the building's function). The Streamline Moderne details are so subtle that the buildings are not considered to embody distinctive characteristics of that style. Nor do they exemplify a method of construction or possess high artistic value. The three buildings dating from 1948 were designed by civil engineer Daniel M. McPhetres who also designed the Oak Creek and Kilburn Road bridges in Stanislaus County (1918), the Soquel Drive Bridge in Aptos (1928), and the Stockton Avenue Bridge in Capitola for the Works Progress Administration (1934). Research revealed little information about McPhetres. Even though he may have been a prominent local engineer, this would indicate that the buildings are not the work of a master. The process control/administration building, which was built in 1965, was enlarged after 1988. Historic photographs of the building were not found, but the extent of the alterations indicate that it no longer exhibits its original design. DAFT 1 and the Influent Pump Station are simply designed utilitarian buildings with little architectural detail. For these reasons, the subject property is not recommended eligible for listing under Criterion 3/c.

Criterion 4/d (Information potential). Research did not reveal that the Santa Cruz Wastewater Treatment Facility would provide important information relevant to history or pre-history that was not already known. For these reasons, the subject property is not recommended eligible for listing under Criterion 4/d.

(Continued on page 11)

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Primary #
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*Resource Name or #: Santa Cruz Wastewater Treatment Facility

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*Date March 2017

☒ Continuation

☐ Update

***B10. Significance (continued from page 10)**

Integrity

The buildings that comprise the facility remain in their original locations and therefore retain integrity of location. Likewise the residential and natural setting is similar to the historic setting. The buildings that were surveyed retain integrity of design, materials, workmanship, and feeling, and association. In summary, the subject property retains a high degree of integrity.

Summary

As the Santa Cruz Wastewater Treatment Facility does not meet any of the California and National Register criteria but retains a high degree of integrity, ESA recommends it to be ineligible for listing in the California and National Registers.

***B12. References (continued from page 2)**

Charles Hall Page & Associates, Inc. *Santa Cruz Historic Building Survey* (1976).

Digital Sanborn Maps: Santa Cruz, CA: 1905, 1928, 1928-1950.

"D. M. McPhetres." *Bridgehunter.com: Historic Bridges of the United States*, www.bridgehunter.com (accessed 17 March 2017).

"D. M. McPhetres, Bridge Engineer." *The Living New Deal*, www.livingnewdeal.org (accessed 17 March 2017).

Hazen, Allen, 1919. "Filtration." *EBWC Journal: Bubbles*. April 1919.

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"History of the Sewerage System of the City of Santa Cruz." *Santa Cruz Public Libraries*, www.santacruzpl.org/history/articles/133 (accessed 13 March 2017).

Santa Cruz Sentinel.

Santa Cruz County Assessor. "Assessor's Database," www.co.santa-cruz.ca.us (accessed 10 March 2017).

Santa Cruz County Planning Department. "Permit History Lookup," www.sccoplanning.com (accessed 13 March 2017).

Santa Cruz County GIS Department. "Santa Cruz GIS," gis.co.santa-cruz.ca.us (accessed 13 March 2017).

U.S. Environmental Protection Agency, Region 9. *Draft Environmental Impact Statement (D-EPA-24001046) for the Treatment Facility Expansion and Interceptor Construction (WPC-CAL-593) in the City of Santa Cruz* (9 January 1973; Appendix 10, pp. 10.5-10.6).

"Wastewater Treatment Facility." *City of Santa Cruz*, www.cityofsantacruz.com (accessed 13 March 2017).

Appendix E

Ambient Noise Measurement Data, Field Notes and
Modeling Worksheets for Construction Noise and
Operational Noise

Appendix E:

Ambient Noise Measurement Data,
Field Notes and Modeling Worksheets
for Construction Noise and Operational
Noise



Legend

R# - Noise-Sensitive Receiver Location

DUDEK

EXHIBIT 1 Vicinity Noise-Sensitive Receivers Included in Assessment Modeling

Santa Cruz WWTP Electrical Upgrades, Santa Cruz, California



Legend

ST# - Short-term Measure Location

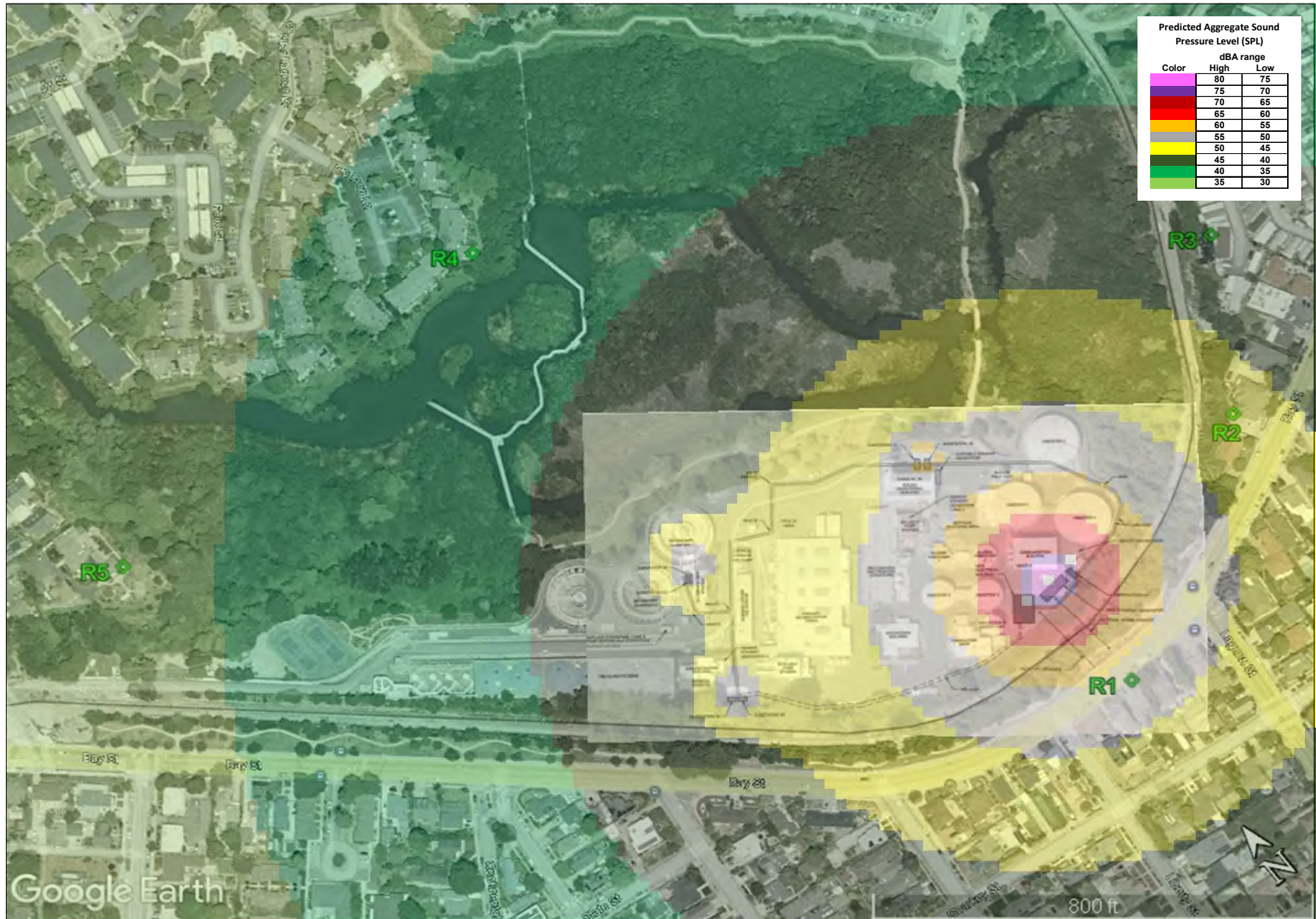
LT# - Long-term Measure Location

EXHIBIT 2

Ambient Noise Measurement Locations

DUDEK

Santa Cruz WWTP Electrical Upgrades, Santa Cruz, California



SOURCE: Dudek 2026

DUDEK



0 200 400 Feet

EXHIBIT 3

Project Operational Noise Levels

Santa Cruz WWTP Electrical Upgrades, Santa Cruz, California

NOISE APPENDIX

Noise Field Data



SLM (Piccolo) ID for Location



Close-up of SLM mounting



Context view of SLM location

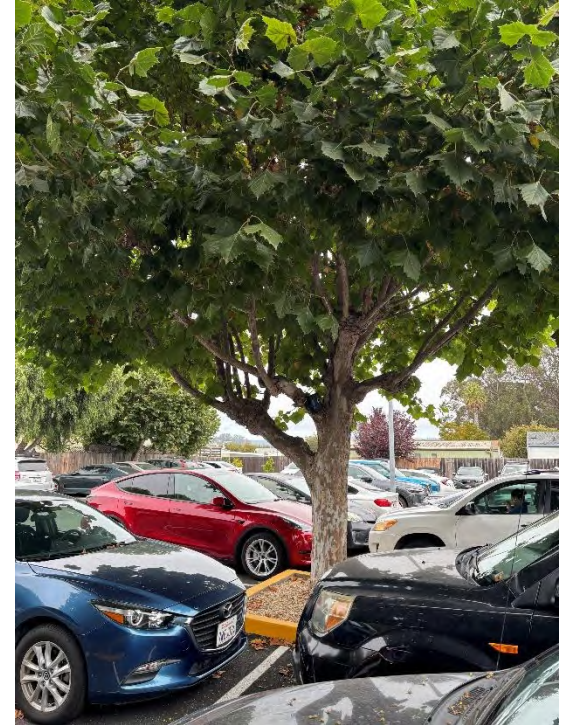
Field Photos
Location LT1



SLM (Piccolo) ID for Location

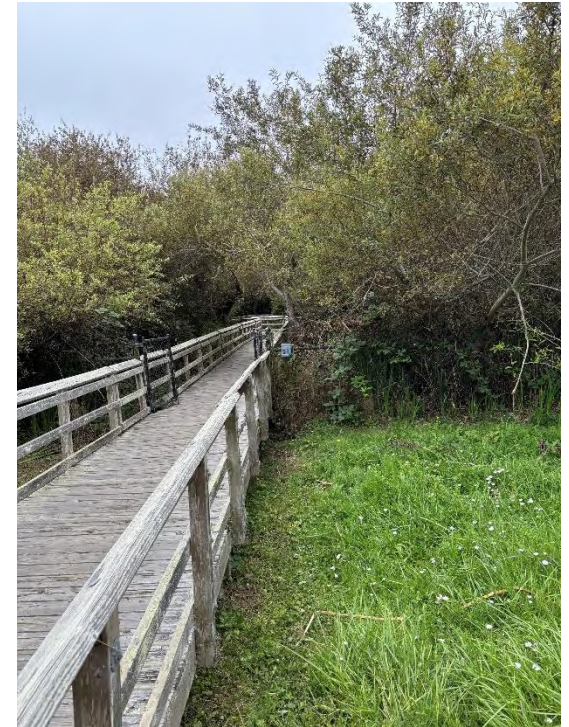


Close-up of SLM mounting



Context view of SLM location

Field Photos Location LT2



Field Photos
Location LT3



SLM with measured street Illustrated



SLM with setback from street illustrated

Field Photos
Location ST1



SLM with measured street Illustrated



SLM with setback from street illustrated

Field Photos
Location ST2



SLM with measured street Illustrated



SLM with setback from street illustrated

Field Photos
Location ST3

FIELD NOISE MEASUREMENT DATA

PROJECT	Santa Cruz Wastewater Treatment Plant Electric Upgrade		PROJECT #	18121.06
SITE ID	ST1			
SITE ADDRESS	1324 Mission Street, Santa Cruz, CA		OBSERVER(S)	JVL & Shea Batchelder
START DATE	08/20/26	END DATE	08/20/26	
START TIME		END TIME		

METEOROLOGICAL CONDITIONS									
TEMP	61	F	HUMIDITY	77	% R.H.	WIND	CALM	<u>LIGHT</u>	MODERATE
WINDSPD	10	MPH	DIR.	N	NE	<u>E</u>	SE	S	SW
SKY	SUNNY	<u>CLEAR</u>	OVRCAST	PRTLY CLDY	FOG	RAIN	VARIABLE	STEADY	GUSTY
ACOUSTIC MEASUREMENTS									
MEAS. INSTRUMENT	SoftdB Piccolo II					TYPE	1	<u>2</u>	SERIAL #
CALIBRATOR	Reed Instruments RB090								SERIAL #
CALIBRATION CHECK	PRE-MEASUREMENT		94.0	dB	A SPL	POST-MEASUREMENT		94.0	dB
									A SPL
SETTINGS	<u>A-WTD</u>	<u>SLOW</u>	FAST	<u>FRONTAL</u>	RANDOM	ANSI	OTHER:		
REC. #	BEGIN	END	Leq	Lmax	Lmin	L90	LS0	L10	OTHER (SPECIFY METRIC)
	Refer to the data logs for piccolo # 1008								
COMMENTS									

SOURCE INFO AND TRAFFIC COUNTS																																																																											
PRIMARY NOISE SOURCE																																																																											
ROADWAY TYPE: 4-lane <u>arterial</u> <u>TRAFFIC</u> AIRCRAFT RAIL INDUSTRIAL OTHER:																																																																											
DIST. TO RDWY C/L OR EOP:																																																																											
TRAFFIC COUNT DURATION: 6 MIN SPEED 25																																																																											
<table border="1" style="width:100%"> <tr> <th colspan="2"></th> <th colspan="2">MIN</th> <th colspan="2">SPEED</th> <th colspan="2">MIN</th> <th colspan="2">SPEED</th> </tr> <tr> <th colspan="2"></th> <th colspan="2">NB/EB</th> <th colspan="2">SB/WB</th> <th colspan="2">NB/EB</th> <th colspan="2">SB/WB</th> </tr> <tr> <td rowspan="5">COUNT 1 (OR RDWY 1)</td> <td>AUTOS</td> <td>184</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>MED TRKS</td> <td>4</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>HVY TRKS</td> <td>6</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>BUSES</td> <td>8</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>MOTRCLS</td> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>												MIN		SPEED		MIN		SPEED				NB/EB		SB/WB		NB/EB		SB/WB		COUNT 1 (OR RDWY 1)	AUTOS	184								MED TRKS	4								HVY TRKS	6								BUSES	8								MOTRCLS	1							
		MIN		SPEED		MIN		SPEED																																																																			
		NB/EB		SB/WB		NB/EB		SB/WB																																																																			
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		MIN		SPEED		MIN		SPEED																																																																			
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OTHER:																																																																											

DESCRIPTION / SKETCH									
TERRAIN <u>HARD</u> SOFT MIXED FLAT OTHER:									
PHOTOS									
OTHER COMMENTS / SKETCH									

FIELD NOISE MEASUREMENT DATA

PROJECT Santa Cruz Wastewater Treatment Plant Electric Upgrade PROJECT # 18121.06
 SITE ID ST2
 SITE ADDRESS 1111 Bay Street, Santa Cruz, CA OBSERVER(S) JVL & Shea Batchelder
 START DATE 08/20/26 END DATE 08/20/26
 START TIME _____ END TIME _____

METEOROLOGICAL CONDITIONS

TEMP 61 F HUMIDITY 79 % R.H. WIND CALM ☒ LIGHT MODERATE
 WINDSPD 8 MPH DIR. N NE ☒ SE S SW W NW VARIABLE STEADY GUSTY
 SKY SUNNY CLEAR ☒ OVRCAST PRTLY CLDY FOG RAIN

ACOUSTIC MEASUREMENTS

MEAS. INSTRUMENT SoftdB Piccolo II TYPE 1 ☒ 2 SERIAL # 1008
 CALIBRATOR Reed Instruments RB090 SERIAL # 2261
 CALIBRATION CHECK PRE-MEASUREMENT 94.0 dBA SPL POST-MEASUREMENT 94.0 dBA SPL WINDSCRN X

SETTINGS ☒ A-WTD ☒ SLOW FAST ☒ FRONTAL RANDOM ANSI OTHER: _____

REC. #	BEGIN	END	Leq	Lmax	Lmin	L90	L50	L10	OTHER (SPECIFY METRIC)
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

Refer to the data logs for piccolo #

COMMENTS

SOURCE INFO AND TRAFFIC COUNTS

PRIMARY NOISE SOURCE ☒ TRAFFIC ☐ AIRCRAFT ☐ RAIL ☐ INDUSTRIAL ☐ OTHER: _____
 ROADWAY TYPE: 2-lane arterial DIST. TO RDWY C/L OR EOP: 6 ft
 TRAFFIC COUNT DURATION: 15 MIN SPEED 30 MIN SPEED

COUNT 1 (OR RDWY 1)	DIRECTION		MIN	SPEED	COUNT 2 (OR RDWY 2)	DIRECTION		MIN	SPEED
	NB/EB	SB/WB				NB/EB	SB/WB		
AUTOS	<u>88</u>	_____	_____	_____	_____	_____	_____	_____	_____
MED TRKS	<u>3</u>	_____	_____	_____	_____	_____	_____	_____	_____
HVY TRKS	<u>3</u>	_____	_____	_____	_____	_____	_____	_____	_____
BUSES	<u>2</u>	_____	_____	_____	_____	_____	_____	_____	_____
MOTRCLS	<u>1</u>	_____	_____	_____	_____	_____	_____	_____	_____

IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE ☒

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE

POSTED SPEED LIMIT SIGNS SAY:

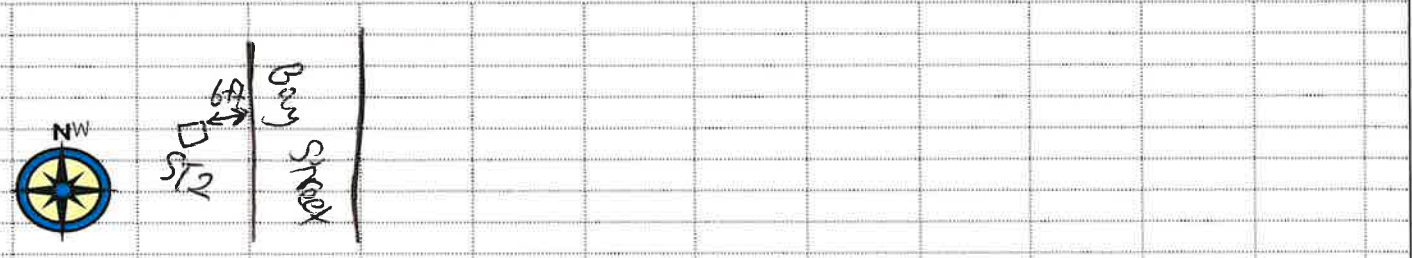
OTHER NOISE SOURCES (BACKGROUND): DIST. AIRCRAFT RUSTLING LEAVES DIST. BARKING DOGS BIRDS DIST. INDUSTRIAL
☒ DIST. KIDS PLAYING DIST. CONVRSTNS / YELLING DIST. TRAFFIC (LIST RDWYS BELOW) DISTD GARDENERS/LANDSCAPING NOISE
 OTHER: _____

DESCRIPTION / SKETCH

TERRAIN ☒ HARD ☐ SOFT ☐ MIXED ☐ FLAT OTHER: _____

PHOTOS _____

OTHER COMMENTS / SKETCH



FIELD NOISE MEASUREMENT DATA

PROJECT <u>Santa Cruz Wastewater Treatment Plant Electric Upgrade</u>		PROJECT # <u>18121.06</u>
SITE ID <u>ST3</u>		
SITE ADDRESS <u>200 California Street, Santa Cruz, CA</u>		OBSERVER(S) <u>JVL & Shea Batchelder</u>
START DATE <u>08/20/26</u>	END DATE <u>08/20/26</u>	
START TIME _____	END TIME _____	

METEOROLOGICAL CONDITIONS									
TEMP <u>60</u> F	HUMIDITY <u>79</u> % R.H.		WIND		CALM ☒ LIGHT		MODERATE		
WINDSPD <u>7</u> MPH	DIR. <u>N</u> <u>NE</u> ☒ <u>SE</u> <u>S</u> <u>SW</u> <u>W</u> <u>NW</u>		RAIN		VARIABLE		STEADY		GUSTY
SKY <u>SUNNY</u> <u>CLEAR</u>	☒ <u>OVERCAST</u>		<u>PRTLY CLDY</u>		<u>FOG</u>				
ACOUSTIC MEASUREMENTS									
MEAS. INSTRUMENT <u>SoftdB Piccolo II</u>		TYPE 1 ☒ 2		SERIAL # <u>1008</u>					
CALIBRATOR <u>Reed Instruments RB090</u>				SERIAL # <u>2261</u>					
CALIBRATION CHECK		PRE-MEASUREMENT <u>94.0</u> dBA SPL		POST-MEASUREMENT <u>94.0</u> dBA SPL		WINDSCRN <u>X</u>			
SETTINGS ☒ <u>A-WTD</u> ☒ <u>SLOW</u> <u>FAST</u> ☒ <u>FRONTAL</u> <u>RANDOM</u> <u>ANSI</u> OTHER: _____									
REC. #	BEGIN	END	Leq	Lmax	Lmin	L90	L50	L10	OTHER (SPECIFY METRIC)
	<u>Refer to the data logs for piccolo #</u>								
COMMENTS									

SOURCE INFO AND TRAFFIC COUNTS											
PRIMARY NOISE SOURCE ☒ <u>TRAFFIC</u> <u>AIRCRAFT</u> <u>RAIL</u> <u>INDUSTRIAL</u> OTHER: _____											
ROADWAY TYPE: <u>2-lane arterial</u> DIST. TO RDWY C/L OR EOP: <u>7 feet</u>											
TRAFFIC COUNT DURATION: <u>15</u> MIN SPEED <u>25</u> MIN SPEED											
		DIRECTION		NB/EB		SB/WB		NB/EB		SB/WB	
COUNT 1 (OR RDWY 1)	AUTOS	<u>114</u>									
	MED TRKS	<u>2</u>									
	HVY TRKS	<u>2</u>									
	BUSES	<u>0</u>									
	MOTRCLS	<u>0</u>									
IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE ☒											
COUNT 2 (OR RDWY 2)											
SPEEDS ESTIMATED BY: <u>RADAR / DRIVING THE PACE</u>											
POSTED SPEED LIMIT SIGNS SAY:											
OTHER NOISE SOURCES (BACKGROUND): DIST. AIRCRAFT <u>RUSTLING LEAVES</u> DIST. BARKING DOGS <u>BIRDS</u> DIST. INDUSTRIAL <u>DIST. KIDS PLAYING</u> DIST. CONVRSTNS / YELLING <u>DIST. TRAFFIC (LIST RDWYS BELOW)</u> DISTD GARDENERS/LANDSCAPING NOISE											
OTHER: _____											

DESCRIPTION / SKETCH											
TERRAIN ☒ <u>HARD</u> <u>SOFT</u> <u>MIXED</u> <u>FLAT</u> OTHER: _____											
PHOTOS _____											
OTHER COMMENTS / SKETCH											

FIELD NOISE MEASUREMENT DATA

PROJECT <u>Santa Cruz Wastewater Treatment Plant Electric Upgrade</u>		PROJECT # <u>18121.06</u>
SITE ID <u>LT1</u>		
SITE ADDRESS <u>315 Bay Street, Santa Cruz, CA</u>		OBSERVER(S) <u>JVL & Shea Batchelder</u>
START DATE <u>08/20/26</u>	END DATE <u>08/21/26</u>	
START TIME <u>10:40 AM</u>	END TIME <u>2:18 PM</u>	

METEOROLOGICAL CONDITIONS									
TEMP <u>57</u> F	HUMIDITY <u>90</u> % R.H.		WIND CALM ☒ LIGHT		MODERATE				
WINDSPD <u>6</u> MPH	DIR. <u>N</u> <u>NE</u> <u>S</u> <u>SE</u> ☒ <u>SW</u> <u>W</u> <u>NW</u>		VARIABLE		STEADY				
SKY <u>SUNNY</u> <u>CLEAR</u>	☒ <u>OVRCAST</u> <u>PRTLY CLDY</u> <u>FOG</u>		RAIN						
ACOUSTIC MEASUREMENTS									
MEAS. INSTRUMENT <u>SoftdB Piccolo II</u>		TYPE <u>1</u> ☒ <u>2</u>		SERIAL # <u>2203</u>					
CALIBRATOR <u>Reed Instruments R8090</u>				SERIAL # <u>2261</u>					
CALIBRATION CHECK		PRE-MEASUREMENT <u>94.0</u> dBA SPL		POST-MEASUREMENT <u>94.7</u> dBA SPL		WINDSCRN <u>X</u>			
SETTINGS ☒ A-WTD ☒ SLOW ☐ FAST ☒ FRONTAL ☐ RANDOM ☐ ANSI OTHER: _____									
REC. #	BEGIN	END	Leq	Lmax	Lmin	L90	LS0	L10	OTHER (SPECIFY METRIC)
	<u>Refer to the data logs for piccolo #2203</u>								
COMMENTS									

SOURCE INFO AND TRAFFIC COUNTS											
PRIMARY NOISE SOURCE				TRAFFIC	AIRCRAFT	RAIL	INDUSTRIAL	OTHER: _____			
ROADWAY TYPE: _____				DIST. TO RDWY C/L OR EOP: _____							
TRAFFIC COUNT DURATION: _____		MIN	SPEED				MIN	SPEED			
		NB/EB	SB/WB	NB/EB	SB/WB			NB/EB	SB/WB	NB/EB	SB/WB
COUNT 1 (OR RDWY 1)	DIRECTION	NB/EB	SB/WB	NB/EB	SB/WB	IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE					
	AUTOS										
	MED TRKS										
	HVY TRKS										
	BUSES										
	MOTRCLS										
SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE											
POSTED SPEED LIMIT SIGNS SAY: _____											
OTHER NOISE SOURCES (BACKGROUND): DIST. AIRCRAFT RUSTLING LEAVES DIST. BARKING DOGS BIRDS DIST. INDUSTRIAL											
DIST. KIDS PLAYING DIST. CONVRSTNS / YELLING DIST. TRAFFIC (LIST RDWYS BELOW) DISTD GARDENERS/LANDSCAPING NOISE											
OTHER: _____											

DESCRIPTION / SKETCH											
TERRAIN ☒ HARD ☐ SOFT ☐ MIXED ☐ FLAT OTHER: _____											
PHOTOS _____											
OTHER COMMENTS / SKETCH											

FIELD NOISE MEASUREMENT DATA

PROJECT Santa Cruz Wastewater Treatment Plant Electric Upgrade PROJECT # 18121.06
 SITE ID LT2
 SITE ADDRESS 170 West Cliff Drive, Santa Cruz, CA OBSERVER(S) JVL & Shea Batchelder
 START DATE 08/20/26 END DATE 08/21/26
 START TIME 10:52 AM END TIME 2:25 PM

METEOROLOGICAL CONDITIONS
 TEMP 57 F HUMIDITY 90 % R.H. WIND CALM LIGHT MODERATE
 WINDSPD 6 MPH DIR. N NE E SE S SW W NW VARIABLE STEADY GUSTY
 SKY SUNNY CLEAR OVERCAST PRTLY CLDY FOG RAIN

ACOUSTIC MEASUREMENTS
 MEAS. INSTRUMENT SoftdB Piccolo II TYPE 1 2 SERIAL # 1805
 CALIBRATOR Reed Instruments R8090 SERIAL # 2261
 CALIBRATION CHECK PRE-MEASUREMENT 94.0 dBA SPL POST-MEASUREMENT 93.7 dBA SPL WINDSCRN X

SETTINGS A-WTD SLOW FAST FRONTAL RANDOM ANSI OTHER: _____

REC. #	BEGIN	END	Leq	Lmax	Lmin	L90	L50	L10	OTHER (SPECIFY METRIC)
	Refer to the data logs for piccolo # 1805								

COMMENTS

SOURCE INFO AND TRAFFIC COUNTS

PRIMARY NOISE SOURCE ROADWAY TYPE: _____ DIST. TO RDWY C/L OR EOP: _____

TRAFFIC COUNT DURATION: _____ MIN SPEED _____ MIN SPEED _____

COUNT 1 (OR RDWY 1)	DIRECTION		SPEED		IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE	COUNT 2 (OR RDWY 2)	
	NB/EB	SB/WB	NB/EB	SB/WB		NB/EB	SB/WB
AUTOS							
MED TRKS							
HVY TRKS							
BUSES							
MOTRCLS							

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE
 POSTED SPEED LIMIT SIGNS SAY: _____

OTHER NOISE SOURCES (BACKGROUND): DIST. AIRCRAFT RUSTLING LEAVES DIST. BARKING DOGS BIRDS DIST. INDUSTRIAL
 DIST. KIDS PLAYING DIST. CONVRSTNS / YELLING DIST. TRAFFIC (LIST RDWYS BELOW) DISTD GARDENERS/LANDSCAPING NOISE
 OTHER: _____

DESCRIPTION / SKETCH
 TERRAIN HARD SOFT MIXED FLAT OTHER: _____
 PHOTOS _____
 OTHER COMMENTS / SKETCH

FIELD NOISE MEASUREMENT DATA

PROJECT	Santa Cruz Wastewater Treatment Plant Electric Upgrade		PROJECT #	18121.06
SITE ID	LT3			
SITE ADDRESS	Chestnut Park, Santa Cruz, CA		OBSERVER(S)	JVL & Shea Batchelder
START DATE	08/20/26	END DATE	08/21/26	
START TIME	11:17 AM	END TIME	2:43 PM	

METEOROLOGICAL CONDITIONS									
TEMP	57 F	HUMIDITY	90 % R.H.	WIND					
WINDSPD	6 MPH	DIR.	N NE (E) SE S SW W NW	CALM ☒ LIGHT ☐ MODERATE ☐					
SKY	SUNNY CLEAR	☒ OVRCAST ☐ PRTLY CLDY ☐ FOG		RAIN					
ACOUSTIC MEASUREMENTS									
MEAS. INSTRUMENT	SoftdB Piccolo II		TYPE	1 (2)					
CALIBRATOR	Reed Instruments R8090			SERIAL # 2807					
CALIBRATION CHECK	PRE-MEASUREMENT	94.0 dBA SPL	POST-MEASUREMENT	93.2 dBA SPL					
SETTINGS	☒ A-WTD ☒ SLOW ☐ FAST ☒ FRONTAL ☐ RANDOM ☐ ANSI ☐ OTHER:								
REC. #	BEGIN	END	Leq	Lmax	Lmin	L90	L50	L10	OTHER (SPECIFY METRIC)
	Refer to the data logs for piccolo # 2807								
COMMENTS									

SOURCE INFO AND TRAFFIC COUNTS											
PRIMARY NOISE SOURCE				TRAFFIC	AIRCRAFT	RAIL	INDUSTRIAL	OTHER:			
ROADWAY TYPE:				DIST. TO RDWY C/L OR EOP:							
TRAFFIC COUNT DURATION:		MIN	SPEED					MIN	SPEED		
DIRECTION		NB/EB	SB/WB	NB/EB	SB/WB			NB/EB	SB/WB	NB/EB	SB/WB
COUNT 1 (OR RDWY 1)	AUTOS					IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE					
	MED TRKS										
	HVY TRKS										
	BUSES										
	MOTRCLS										
SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE											
POSTED SPEED LIMIT SIGNS SAY:											
OTHER NOISE SOURCES (BACKGROUND): DIST. AIRCRAFT RUSTLING LEAVES DIST. BARKING DOGS BIRDS DIST. INDUSTRIAL											
DIST. KIDS PLAYING DIST. CONVRSTNS / YELLING DIST. TRAFFIC (LIST RDWYS BELOW) DISTD GARDENERS/LANDSCAPING NOISE											
OTHER:											

DESCRIPTION / SKETCH	
TERRAIN	☒ SHARD ☒ SOFT MIXED FLAT OTHER:
PHOTOS	
OTHER COMMENTS / SKETCH	

LT3 boardwalk Houses boardwalk

Start Date	Start Time	End Time	Duration	Leq	Lmax	Lmin	L5	L10	L50	L90	L95
ST1											
8/20/2026	1:13:00 PM	1:14:00 PM	0:01:00	71	75.6	48.6	74	73	70	66	64
8/20/2026	1:14:00 PM	1:15:00 PM	0:01:00	73.6	73.9	52.8	73	73	71	68.2	66.2
8/20/2026	1:15:00 PM	1:16:00 PM	0:01:00	73.6	83.9	48.8	80.3	76	67	62	61
8/20/2026	1:16:00 PM	1:17:00 PM	0:01:00	73	74.3	49.3	74	73.7	72	66.3	64.3
8/20/2026	1:17:00 PM	1:18:00 PM	0:01:00	73.3	86	51.7	82	73	60	55	54
8/20/2026	1:18:00 PM	1:19:00 PM	0:01:00	71.7	89.6	42.7	76.3	71.2	62.4	48.8	46.4

MEASUREMENT LOCATION ST1

	Leq	Lmax	Lmin	L10	L25	L50	L90	L95
Values Averaged Across Measurement Period:	72.8			78.0	73.6	68.9	64.5	62.6
Lowest Value Recorded Across Period (Lmin)			42.7					
Highest Value Recorded Across Period (Lmax)		89.6						

Start Date	Start Time	End Time	Duration	Leq	Lmax	Lmin	L5	L10	L50	L90	L95
ST2											
8/20/2026	12:48:00 PM	12:49:00 PM	0:01:00	66	70.6	55.9	68.1	68	65	58	57.9
8/20/2026	12:49:00 PM	12:50:00 PM	0:01:00	67.2	74.7	51.5	72	70	65	54	53
8/20/2026	12:50:00 PM	12:51:00 PM	0:01:00	64.1	72.4	47.1	70	69	58	48	47
8/20/2026	12:51:00 PM	12:52:00 PM	0:01:00	62.5	72.9	46.1	69	67	52	47	46
8/20/2026	12:52:00 PM	12:53:00 PM	0:01:00	63.6	71.3	47.3	70	68.1	59	48	47
8/20/2026	12:53:00 PM	12:54:00 PM	0:01:00	62.7	71.9	46.2	70	68	55	47	46
8/20/2026	12:54:00 PM	12:55:00 PM	0:01:00	66.6	71.9	46.9	70	70	65	57	50
8/20/2026	12:55:00 PM	12:56:00 PM	0:01:00	64.6	76.8	47.9	72	68	54	49	48
8/20/2026	12:56:00 PM	12:57:00 PM	0:01:00	65.7	73.5	47.8	70	69	64	49	48
8/20/2026	12:57:00 PM	12:58:00 PM	0:01:00	65.8	73.8	50.9	70	69.1	63	53	51
8/20/2026	12:58:00 PM	12:59:00 PM	0:01:00	65.6	75.1	47.6	72	69	62	49	48
8/20/2026	12:59:00 PM	1:00:00 PM	0:01:00	62.4	72	48.9	69	67	55	50	49
8/20/2026	1:00:00 PM	1:01:00 PM	0:01:00	63.3	69.8	47.2	68	67	59	49	48
8/20/2026	1:01:00 PM	1:02:00 PM	0:01:00	66.6	75.8	50.1	72	70	63	51	50
8/20/2026	1:02:00 PM	1:03:00 PM	0:01:00	67	76.3	52.1	72	71	63	57	52

MEASUREMENT LOCATION ST2

	Leq	Lmax	Lmin	L10	L25	L50	L90	L95
Values Averaged Across Measurement Period:	65.2			70.5	68.8	61.8	52.8	50.8
Lowest Value Recorded Across Period (Lmin)			46.1					
Highest Value Recorded Across Period (Lmax)		76.8						

Start Date	Start Time	End Time	Duration	Leq	Lmax	Lmin	L5	L10	L50	L90	L95
ST3											
8/20/2026	11:45:00 AM	11:46:00 AM	0:01:00	59.1	65	48.9	63	62	58	52	50
8/20/2026	11:46:00 AM	11:47:00 AM	0:01:00	61.3	68.6	47.9	65	64	60	49	48
8/20/2026	11:47:00 AM	11:48:00 AM	0:01:00	60.1	67.3	49.9	64	63	59	54	52
8/20/2026	11:48:00 AM	11:49:00 AM	0:01:00	57.6	63.4	48	62	61	56	49	49
8/20/2026	11:49:00 AM	11:50:00 AM	0:01:00	56	63.9	46.5	62	59	52	47	47
8/20/2026	11:50:00 AM	11:51:00 AM	0:01:00	59.7	66.4	49.3	65	63	58	50	49
8/20/2026	11:51:00 AM	11:52:00 AM	0:01:00	66.9	79.4	47.8	73	68.1	61	51	49
8/20/2026	11:52:00 AM	11:53:00 AM	0:01:00	57.4	65.3	47.9	61	60	55	49	48
8/20/2026	11:53:00 AM	11:54:00 AM	0:01:00	63.9	73.7	51	70	67.1	60	53	51
8/20/2026	11:54:00 AM	11:55:00 AM	0:01:00	58	61.8	51.9	61	60	57	53	52
8/20/2026	11:55:00 AM	11:56:00 AM	0:01:00	62.2	68.6	55.3	65	64	61	58	57
8/20/2026	11:56:00 AM	11:57:00 AM	0:01:00	58.7	67.9	47.5	64	63	54	48	48
8/20/2026	11:57:00 AM	11:58:00 AM	0:01:00	73.3	86	51.7	82	73	60	55	54
8/20/2026	11:58:00 AM	11:59:00 AM	0:01:00	58.9	65	46.8	63	62	56	51	48
8/20/2026	11:59:00 AM	12:00:00 PM	0:01:00	53.1	62.3	43.1	60	58	49	43	43

MEASUREMENT LOCATION ST3

	Leq	Lmax	Lmin	L10	L25	L50	L90	L95
Values Averaged Across Measurement Period:	64.1			71.5	65.3	58.1	52.2	50.9
Lowest Value Recorded Across Period (Lmin)			43.1					
Highest Value Recorded Across Period (Lmax)		79.4						

MEASUREMENT LOCATION LT1

Start Date	Start Time	End Time	Duration	Leq	Lmax	Lmin	L10	L25	L50	L90	L95	
8/20/2026	11:00:00 AM	12:00:00 PM	01:00:00		66.6	77.8	55.5	69.8	67.9	65.6	57.5	56.9
8/20/2026	12:00:00 PM	1:00:00 PM	01:00:00		68.2	79.9	56.1	70.9	69.3	67.7	61.3	58.7
8/20/2026	1:00:00 PM	2:00:00 PM	01:00:00		64.5	77	55.4	68.4	65.7	61.5	57.1	56.6
8/20/2026	2:00:00 PM	3:00:00 PM	01:00:00		64.6	76.8	56.2	68.4	66	61.9	57.5	57.2
8/20/2026	3:00:00 PM	4:00:00 PM	01:00:00		64.4	76.4	56	68.1	65.7	61.8	57.3	56.9
8/20/2026	4:00:00 PM	5:00:00 PM	01:00:00		64.7	77.7	55.9	68.3	66.2	62.8	57	56.7
8/20/2026	5:00:00 PM	6:00:00 PM	01:00:00		64.4	78.1	55.9	68.1	65.8	61.5	57.1	56.8
8/20/2026	6:00:00 PM	7:00:00 PM	01:00:00		65.4	90.2	56.3	68	65.5	61.2	57.3	57.1
8/20/2026	7:00:00 PM	8:00:00 PM	01:00:00		64.1	78.1	56.3	68	65.3	60.4	57.1	56.9
8/20/2026	8:00:00 PM	9:00:00 PM	01:00:00		63.2	76.5	56.4	67.3	63.8	59	57.3	57.2
8/20/2026	9:00:00 PM	10:00:00 PM	01:00:00		62.7	81.2	56.5	66.7	61.8	57.8	57.2	57.1
8/20/2026	10:00:00 PM	11:00:00 PM	01:00:00		61.6	76.8	56.8	65.3	59.9	57.8	57.3	57.2
8/20/2026	11:00:00 PM	12:00:00 AM	01:00:00		60.3	76.8	55.4	63	57.9	57.5	56.3	56.1
8/21/2026	12:00:00 AM	1:00:00 AM	01:00:00		58.7	72.8	54.7	59.1	56.3	56	55.6	55.5
8/21/2026	1:00:00 AM	2:00:00 AM	01:00:00		57.3	73.6	55.2	56.6	56.3	56.1	55.7	55.6
8/21/2026	2:00:00 AM	3:00:00 AM	01:00:00		57.5	76	55.1	56.4	56.1	55.9	55.6	55.5
8/21/2026	3:00:00 AM	4:00:00 AM	01:00:00		56.7	72.7	55.1	56.5	56.3	56.1	55.7	55.6
8/21/2026	4:00:00 AM	5:00:00 AM	01:00:00		57.2	73.6	55	56.6	56.4	56.1	55.7	55.5
8/21/2026	5:00:00 AM	6:00:00 AM	01:00:00		58.7	73.9	55.3	59	56.7	56.3	55.9	55.8
8/21/2026	6:00:00 AM	7:00:00 AM	01:00:00		62.1	78.8	55.7	66	59.7	57.7	56.4	56.3
8/21/2026	7:00:00 AM	8:00:00 AM	01:00:00		63.6	80.6	56.3	67.5	63.1	58.7	57.4	57.1
8/21/2026	8:00:00 AM	9:00:00 AM	01:00:00		64.6	76.2	56.1	68.5	65.6	61	57	56.8
8/21/2026	9:00:00 AM	10:00:00 AM	01:00:00		69.5	87.7	56.2	70.1	67.1	63.4	58	57.3
8/21/2026	10:00:00 AM	11:00:00 AM	01:00:00		64.8	78.1	55.6	68.8	66.1	61.7	56.9	56.7

MEASUREMENT LOCATION LT1

Daytime L _{eq} Range	Max	69.5	Nighttime L _{eq} Range	Max	62.1
	Min	62.7		Min	56.7

CNEL **67.8**LDN **67.3**

CNEL Calculated From Hourly Measurement Data for Location LT1

Leq	Time	Adjustment		
58.7	Midnight	10	68.7	68.7
57.3	1	10	67.3	67.3
57.5	2	10	67.5	67.5
56.7	3	10	66.7	66.7
57.2	4	10	67.2	67.2
58.7	5	10	68.7	68.7
62.1	6	10	72.1	72.1
63.6	7am		63.6	63.6
64.6	8		64.6	64.6
69.5	9		69.5	69.5
64.8	10		64.8	64.8
66.6	11		66.6	66.6
68.2	noon		68.2	68.2
64.5	1		64.5	64.5
64.6	2		64.6	64.6
64.4	3		64.4	64.4
64.7	4		64.7	64.7
64.4	5		64.4	64.4
65.4	6		65.4	65.4
64.1	7	5	69.1	64.1
63.2	8	5	68.2	63.2
62.7	9	5	67.7	62.7
61.6	10	10	71.6	71.6
60.3	11	10	70.3	70.3
			67.8	67.3
		CNEL	LDN	

MEASUREMENT LOCATION LT2

Start Date	Start Time	End Time	Duration	Leq	Lmax	Lmin	L10	L25	L50	L90	L95	
8/20/2026	11:00:00 AM	12:00:00 PM	01:00:00		53.2	72.3	44.7	55.6	53.3	51.6	48.6	47.6
8/20/2026	12:00:00 PM	1:00:00 PM	01:00:00		54.6	74.3	45.1	56.6	54.8	53.1	50.5	49.9
8/20/2026	1:00:00 PM	2:00:00 PM	01:00:00		53.4	64.6	46.3	56.3	54	52	49.1	48.4
8/20/2026	2:00:00 PM	3:00:00 PM	01:00:00		54.6	74.8	47	56.7	54.8	53.1	50.2	49.4
8/20/2026	3:00:00 PM	4:00:00 PM	01:00:00		54.9	77.5	45.6	57.1	54.4	52.2	49.1	48.2
8/20/2026	4:00:00 PM	5:00:00 PM	01:00:00		55.4	71.6	45.6	58	55.6	52.7	49.1	48.3
8/20/2026	5:00:00 PM	6:00:00 PM	01:00:00		54.8	81.3	45.2	56.2	53.8	52.1	49.5	48.8
8/20/2026	6:00:00 PM	7:00:00 PM	01:00:00		53.8	72.5	44.8	55.6	53.4	51.6	48.9	48.1
8/20/2026	7:00:00 PM	8:00:00 PM	01:00:00		53.8	72	45.1	54.9	52.9	51.4	48.4	47.7
8/20/2026	8:00:00 PM	9:00:00 PM	01:00:00		59.3	82.6	42.4	57.3	53.1	50.7	46.7	45.6
8/20/2026	9:00:00 PM	10:00:00 PM	01:00:00		51.9	69	39.7	54	51.5	49.4	44.6	43.2
8/20/2026	10:00:00 PM	11:00:00 PM	01:00:00		49	61.3	39.4	52.1	49.8	47.2	42.5	41.6
8/20/2026	11:00:00 PM	12:00:00 AM	01:00:00		50.1	72	37.4	53.3	49.9	45.9	40	39.3
8/21/2026	12:00:00 AM	1:00:00 AM	01:00:00		48.1	68.2	37.5	49.8	46	42.6	39.3	38.9
8/21/2026	1:00:00 AM	2:00:00 AM	01:00:00		44	66	37	45.8	42.9	41	38.8	38.4
8/21/2026	2:00:00 AM	3:00:00 AM	01:00:00		43.7	69.6	36.9	44.6	41.6	39.9	38.1	37.8
8/21/2026	3:00:00 AM	4:00:00 AM	01:00:00		41.1	54.4	37	42.6	40.6	39.4	38.3	38.1
8/21/2026	4:00:00 AM	5:00:00 AM	01:00:00		48.1	75	37.1	51	44.6	40.7	38.8	38.4
8/21/2026	5:00:00 AM	6:00:00 AM	01:00:00		47.3	63.9	37.8	50	46	42.5	39.8	39.4
8/21/2026	6:00:00 AM	7:00:00 AM	01:00:00		53.3	79.9	38.8	55.4	51.1	47.3	42	41.1
8/21/2026	7:00:00 AM	8:00:00 AM	01:00:00		67.7	87.8	42.8	69.5	63.2	57.9	49.1	47.8
8/21/2026	8:00:00 AM	9:00:00 AM	01:00:00		56.4	71.9	45	59	55.7	52.9	49.4	48.5
8/21/2026	9:00:00 AM	10:00:00 AM	01:00:00		56.6	69.9	44	60	55.6	52.7	48.9	47.8
8/21/2026	10:00:00 AM	11:00:00 AM	01:00:00		52.3	67.4	44.3	54.6	52.8	51.1	48.4	47.5

MEASUREMENT LOCATION LT2

Daytime L_{eq} Range	Max	67.7	Nighttime L_{eq} Range	Max	53.3
	Min	51.9		Min	41.1

CNEL **59.1** LDN **58.5**

CNEL Calculated From Hourly Measurement Data for Location LT2

Leq	Time	Adjustment		
48.1	Midnight	10	58.1	58.1
44.0	1	10	54	54
43.7	2	10	53.7	53.7
41.1	3	10	51.1	51.1
48.1	4	10	58.1	58.1
47.3	5	10	57.3	57.3
53.3	6	10	63.3	63.3
67.7	7am		67.7	67.7
56.4	8		56.4	56.4
56.6	9		56.6	56.6
52.3	10		52.3	52.3
53.2	11		53.2	53.2
54.6	noon		54.6	54.6
53.4	1		53.4	53.4
54.6	2		54.6	54.6
54.9	3		54.9	54.9
55.4	4		55.4	55.4
54.8	5		54.8	54.8
53.8	6		53.8	53.8
53.8	7	5	58.8	53.8
59.3	8	5	64.3	59.3
51.9	9	5	56.9	51.9
49.0	10	10	59	59
50.1	11	10	60.1	60.1
			59.1	58.5
			CNEL	LDN

MEASUREMENT LOCATION LT3

Start Date	Start Time	End Time	Duration	Leq	Lmax	Lmin	L10	L25	L50	L90	L95	
8/20/2026	11:00:00 AM	12:00:00 PM	01:00:00		57.5	87.1	38.6	49.8	47.2	44.3	40.4	40
8/20/2026	12:00:00 PM	1:00:00 PM	01:00:00		47.7	71.8	39	48.1	45.2	43.7	41	40.5
8/20/2026	1:00:00 PM	2:00:00 PM	01:00:00		47.7	73.8	38.7	47.1	44.4	42.7	40.6	40.1
8/20/2026	2:00:00 PM	3:00:00 PM	01:00:00		42.7	56.5	38.3	44.9	42.9	41.2	39.5	39.2
8/20/2026	3:00:00 PM	4:00:00 PM	01:00:00		47.7	79.3	37.4	44	42.2	41	39.3	39
8/20/2026	4:00:00 PM	5:00:00 PM	01:00:00		49.7	76.8	36.1	44.8	40.6	39	37.6	37.2
8/20/2026	5:00:00 PM	6:00:00 PM	01:00:00		47.8	76.6	36.8	44.6	40.8	39.5	38.1	37.9
8/20/2026	6:00:00 PM	7:00:00 PM	01:00:00		45.3	68.3	35.7	46.1	41.7	39.6	37.4	36.9
8/20/2026	7:00:00 PM	8:00:00 PM	01:00:00		49.3	76.7	38.3	46.5	42.4	41.1	39.8	39.5
8/20/2026	8:00:00 PM	9:00:00 PM	01:00:00		44.4	70.2	38.1	43.1	41.7	40.8	39.7	39.4
8/20/2026	9:00:00 PM	10:00:00 PM	01:00:00		41.4	64.3	36.3	41.8	40.4	39.5	37.8	37.4
8/20/2026	10:00:00 PM	11:00:00 PM	01:00:00		39.8	47.3	36.3	40.9	40.1	39.5	37.7	37.3
8/20/2026	11:00:00 PM	12:00:00 AM	01:00:00		38.2	57.3	34.8	39.2	38.6	37.8	36.3	35.8
8/21/2026	12:00:00 AM	1:00:00 AM	01:00:00		36.5	41.8	34.7	37.3	36.8	36.4	35.6	35.4
8/21/2026	1:00:00 AM	2:00:00 AM	01:00:00		37.2	44.2	35.5	37.9	37.5	37	36.3	36.1
8/21/2026	2:00:00 AM	3:00:00 AM	01:00:00		38.1	62.3	33.2	38.6	37.4	36.8	35.3	34.5
8/21/2026	3:00:00 AM	4:00:00 AM	01:00:00		35.5	43	33.1	36.7	36.1	35.4	33.8	33.6
8/21/2026	4:00:00 AM	5:00:00 AM	01:00:00		36.4	47.8	33	37.6	37	36.4	33.9	33.7
8/21/2026	5:00:00 AM	6:00:00 AM	01:00:00		36.6	43.6	33.5	37.5	37.1	36.7	34.3	34
8/21/2026	6:00:00 AM	7:00:00 AM	01:00:00		50.2	79.5	33.4	43.4	38.7	36.2	34.5	34.2
8/21/2026	7:00:00 AM	8:00:00 AM	01:00:00		40.7	61.8	33.4	41.8	38.8	36.7	34.7	34.4
8/21/2026	8:00:00 AM	9:00:00 AM	01:00:00		60.4	87	34.9	50.7	43	39.5	37.1	36.3
8/21/2026	9:00:00 AM	10:00:00 AM	01:00:00		46.6	68.5	37.7	48.4	45.9	43.2	40.9	40.2
8/21/2026	10:00:00 AM	11:00:00 AM	01:00:00		53	87.4	38.3	45.8	42.1	41	39.7	39.4

MEASUREMENT LOCATION LT3

Daytime L_{eq} Range	Max	60.4	Nighttime L_{eq} Range	Max	50.2
	Min	40.7		Min	35.5

CNEL **51.1** LDN **50.7**

CNEL Calculated From Hourly Measurement Data for Location LT3

Leq	Time	Adjustment		
38.2	Midnight	10	48.2	48.2
36.5	1	10	46.5	46.5
37.2	2	10	47.2	47.2
38.1	3	10	48.1	48.1
35.5	4	10	45.5	45.5
36.4	5	10	46.4	46.4
36.6	6	10	46.6	46.6
50.2	7am		50.2	50.2
40.7	8		40.7	40.7
60.4	9		60.4	60.4
46.6	10		46.6	46.6
57.5	11		57.5	57.5
47.7	noon		47.7	47.7
47.7	1		47.7	47.7
42.7	2		42.7	42.7
47.7	3		47.7	47.7
49.7	4		49.7	49.7
47.8	5		47.8	47.8
45.3	6		45.3	45.3
49.3	7	5	54.3	49.3
44.4	8	5	49.4	44.4
41.4	9	5	46.4	41.4
39.8	10	10	49.8	49.8
38.2	11	10	48.2	48.2
			51.1	50.7
		CNEL	LDN	

NOISE APPENDIX

Construction Noise Modeling Data

Analysis Type	Nearest	
Source to barrier distance (ft)	20	magnitude of threshold (dBA) = 80
Receiver to barrier distance (ft)	20	allowable hours over which Leq is to be averaged = 8
Barrier height (ft)	0	
Receiver height (ht)	5	

Construction Activity	Equipment	Total Equipment Qty	Reference Level (Leq or Lmax) @ 50 ft. from FHWA RCNM 2 Table	Air Quality/Client Equipment Description, Data Source and/or Notes	Source to NSR Distance (ft.)	Distance-Adjusted Level	Allowable Operation Time (hours)	Allowable Operation Time (minutes)	Predicted 8-hour Leq
Demolition	Dozer	1	80.0	Rubber Tired Dozers	185	64.8	8	480	65
	Backhoe	2	75.8	Tractors/Loaders/Backhoes	185	60.5	8	480	64
	Concrete Saw	1	85.4	Concrete Saw	185	69.9	8	480	70
	Directional Drill Rig	1	67.9	Bore/Drill Rig	185	52.6	8	480	53
Total for Demolition Phase:									71.8
Building Construction	Backhoe	2	75.8	Tractors/Loaders/Backhoes	185	60.5	8	480	64
	Crane	1	74.2	Cranes	185	59.3	8	480	59
	Man Lift	2	72.1	Aerial Lifts / Forklifts	185	57.0	8	480	60
	Compactor (Plate)	1	74.6	Plate Compactor	185	59.0	8	480	59
	Concrete Mixer Truck	2	81.1	Cement Mixers	185	65.9	8	480	69
Total for Building Construction Phase:									71.0

Analysis Type	Nearest	
Source to barrier distance (ft)	20	magnitude of threshold (dBA) = 80
Receiver to barrier distance (ft)	20	allowable hours over which Leq is to be averaged = 8
Barrier height (ft)	0	
Receiver height (ht)	5	

Construction Activity	Equipment	Total Equipment Qty	Reference Level (Leq or Lmax) @ 50 ft. from FHWA RCNM 2 Table	Air Quality/Client Equipment Description, Data Source and/or Notes	Source to NSR Distance (ft.)	Distance-Adjusted Level	Allowable Operation Time (hours)	Allowable Operation Time (minutes)	Predicted 8-hour Leq
Demolition	Dozer	1	80.0	Rubber Tired Dozers	250	61.7	8	480	62
	Backhoe	2	75.8	Tractors/Loaders/Backhoes	250	57.5	8	480	61
	Concrete Saw	1	85.4	Concrete Saw	250	67.0	8	480	67
	Directional Drill Rig	1	67.9	Bore/Drill Rig	250	49.6	8	480	50
Total for Demolition Phase:									68.8
Building Construction	Backhoe	2	75.8	Tractors/Loaders/Backhoes	250	57.5	8	480	61
	Crane	1	74.2	Cranes	250	56.2	8	480	56
	Man Lift	2	72.1	Aerial Lifts / Forklifts	250	53.9	8	480	57
	Compactor (Plate)	1	74.6	Plate Compactor	250	56.0	8	480	56
	Concrete Mixer Truck	2	81.1	Cement Mixers	250	62.9	8	480	66
Total for Building Construction Phase:									68.0

Analysis Type	Nearest	
Source to barrier distance (ft)	20	magnitude of threshold (dBA) = 80
Receiver to barrier distance (ft)	20	allowable hours over which Leq is to be averaged = 8
Barrier height (ft)	0	
Receiver height (ht)	5	

Construction Activity	Equipment	Total Equipment Qty	Reference Level (Leq or Lmax) @ 50 ft. from FHWA RCNM 2 Table	Air Quality/Client Equipment Description, Data Source and/or Notes	Source to NSR Distance (ft.)	Distance-Adjusted Level	Allowable Operation Time (hours)	Allowable Operation Time (minutes)	Predicted 8-hour Leq
Demolition	Dozer	1	80.0	Rubber Tired Dozers	430	56.4	8	480	56
	Backhoe	2	75.8	Tractors/Loaders/Backhoes	430	52.3	8	480	55
	Concrete Saw	1	85.4	Concrete Saw	430	61.8	8	480	62
	Directional Drill Rig	1	67.9	Bore/Drill Rig	430	44.4	8	480	44
Total for Demolition Phase:									63.6
Building Construction	Backhoe	2	75.8	Tractors/Loaders/Backhoes	430	52.3	8	480	55
	Crane	1	74.2	Cranes	430	50.8	8	480	51
	Man Lift	2	72.1	Aerial Lifts / Forklifts	430	48.6	8	480	52
	Compactor (Plate)	1	74.6	Plate Compactor	430	50.9	8	480	51
	Concrete Mixer Truck	2	81.1	Cement Mixers	430	57.6	8	480	61
Total for Building Construction Phase:									62.7

Analysis Type	Nearest	
Source to barrier distance (ft)	20	magnitude of threshold (dBA) = 80
Receiver to barrier distance (ft)	20	allowable hours over which Leq is to be averaged = 8
Barrier height (ft)	0	
Receiver height (ht)	5	

Construction Activity	Equipment	Total Equipment Qty	Reference Level (Leq or Lmax) @ 50 ft. from FHWA RCNM 2 Table	Air Quality/Client Equipment Description, Data Source and/or Notes	Source to NSR Distance (ft.)	Distance-Adjusted Level	Allowable Operation Time (hours)	Allowable Operation Time (minutes)	Predicted 8-hour Leq
Demolition	Dozer	1	80.0	Rubber Tired Dozers	615	53.0	8	480	53
	Backhoe	2	75.8	Tractors/Loaders/Backhoes	615	48.8	8	480	52
	Concrete Saw	1	85.4	Concrete Saw	615	58.4	8	480	58
	Directional Drill Rig	1	67.9	Bore/Drill Rig	615	40.9	8	480	41
Total for Demolition Phase:									60.2
Building Construction	Backhoe	2	75.8	Tractors/Loaders/Backhoes	615	48.8	8	480	52
	Crane	1	74.2	Cranes	615	47.3	8	480	47
	Man Lift	2	72.1	Aerial Lifts / Forklifts	615	45.1	8	480	48
	Compactor (Plate)	1	74.6	Plate Compactor	615	47.5	8	480	48
	Concrete Mixer Truck	2	81.1	Cement Mixers	615	54.1	8	480	57
Total for Building Construction Phase:									59.3

Analysis Type	Nearest	
Source to barrier distance (ft)	20	magnitude of threshold (dBA) = 80
Receiver to barrier distance (ft)	20	allowable hours over which Leq is to be averaged = 8
Barrier height (ft)	0	
Receiver height (ht)	5	

Construction Activity	Equipment	Total Equipment Qty	Reference Level (Leq or Lmax) @ 50 ft. from FHWA RCNM 2 Table	Air Quality/Client Equipment Description, Data Source and/or Notes	Source to NSR Distance (ft.)	Distance-Adjusted Level	Allowable Operation Time (hours)	Allowable Operation Time (minutes)	Predicted 8-hour Leq
Demolition	Dozer	1	80.0	Rubber Tired Dozers	550	54.1	8	480	54
	Backhoe	2	75.8	Tractors/Loaders/Backhoes	550	49.9	8	480	53
	Concrete Saw	1	85.4	Concrete Saw	550	59.5	8	480	59
	Directional Drill Rig	1	67.9	Bore/Drill Rig	550	42.0	8	480	42
Total for Demolition Phase:									61.2
Building Construction	Backhoe	2	75.8	Tractors/Loaders/Backhoes	550	49.9	8	480	53
	Crane	1	74.2	Cranes	550	48.4	8	480	48
	Man Lift	2	72.1	Aerial Lifts / Forklifts	550	46.2	8	480	49
	Compactor (Plate)	1	74.6	Plate Compactor	550	48.6	8	480	49
	Concrete Mixer Truck	2	81.1	Cement Mixers	550	55.2	8	480	58
Total for Building Construction Phase:									60.4

NOISE APPENDIX

Operational Noise Modeling Worksheets

Technical Basis of Dudek's "NoisePro" Excel-based Outdoor Sound Propagation Prediction Model

In summary, the Microsoft Excel-based **NoisePro** outdoor sound propagation model developed by Dudek calculates the aggregate sound pressure level (SPL) received by each and every cell within a two-dimensional (2D) array (a product of X columns of cells by Y rows of cells). The quantity of this received SPL, in A-weighted decibels (dBA), is the logarithmic sum of acoustical contribution from each of "n" user-input sound emitting point sources located on the same 2D array, which may be written as follows:

$$SPL_{X,Y} = 10 * \log \sum_{i=1}^n 10^{0.1[L_i - A_i]}$$

where each individual source sound level (L_i) is attenuated by an algebraic sum of three attenuation factors ($A_i = A_{div} + A_{atm} + A_{gr}$) that are each dependent on the distance between the sound source position on the X by Y array and the receiving $SPL_{X,Y}$ position on a different position in the same 2D array of worksheet cells, where each cell is defined by the user as representing the center of a square area having equal sides of user-defined length in feet. The above expression is based on Equation 5 from the International Organization for Standardization (ISO) 9613-2 "Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation", and the individual attenuation factors used by **NoisePro** emulate those in Equation 4 and may be summarized as follows:

- A_{div} = attenuation due to *geometrical divergence* (i.e., pure distance), equating to $20 * \log(d/d_{ref})$; and where d is the horizontal distance between a source and a receiver position, while d_{ref} is the reference distance at which the sound source L_i is defined.
- A_{atm} = attenuation due to *atmospheric absorption*, which for 1,000 Hz (1 kHz) = $4.16 * d / 3280$ and is derived from Equation 5.7 in Noise & Vibration Control Engineering (Beranek and Ver, 1992).
- A_{gr} = attenuation due to *ground effects*, appearing as Equation 10 in ISO 9613-2 and can be expressed with the following Excel formula:

$$A_{gr} = \text{MAX}(0, 4.8 - [h_s + h_r] / d * [17 + 984 / d])$$

where h_s and h_r are the heights (in feet) of the sound source and receiver positions above grade, respectively. This means that for small distances, attenuation from ground effects will be small or essentially zero; and, even at great distances, the attenuation from ground effects is effectively capped at 4.8 dB.

The Excel workbook comprising **NoisePro** calculates $SPL_{X,Y}$ by using a coding loop to evaluate the acoustic contribution from each attenuated sound source ($L_i - A_i$) in sequence, and logarithmically adding the new evaluation to the previous total in a cumulative manner. When all sources have been evaluated, the loop terminates and yields an aggregate or log-summed total $SPL_{X,Y}$ value that is thus unique to a position in the 2D array of cells represented by X and Y, and can thus be "mapped". If the user has defined a particular cell in the X by Y array as a uniquely tagged Receiver, then the corresponding $SPL_{X,Y}$ value can be indexed and displayed accordingly.

The resulting output array of cells, each having an individually calculated $SPL_{X,Y}$ numerical value, is then filled with a color (from a user-defined palette) by application of a Conditional Formatting rules set (an Excel formatting feature) that compares the dB quantity with user-defined "high" and "low" dB ranges for each available color. Each colored cell can thus be likened to a "pixel" within a 2D array that forms a composite image representing—visually—the sound propagation from all modeled sound sources.

GRID CALCULATION WORKSHEET

Example Portion of Concluded Calculations Loop

					Source	9
grid size (ft)					Source Tag	S9
x	20				Source X-coordinate	1920
y	20				Source Y-coordinate	1140
rcvr plane height (ft)					Source Z-coordinate	10
z	5				Source Reference SPL	64
					Source Ref. Distance (ft.)	77.8
Grid Upper Left (C,R)					Source height above grade (ft.)	23
1	1					
Grid Lower Right (C,R)						
120	90					
		Receiver Location				
Column	Row	X-coord	Y-coord	Z-coord	Cumulative + Source SPL	
1	1	20	20	5	30.81	
1	2	20	40	5	30.86	
1	3	20	60	5	30.91	
1	4	20	80	5	30.96	
1	5	20	100	5	31.02	
1	6	20	120	5	31.07	
1	7	20	140	5	31.12	
1	8	20	160	5	31.17	
1	9	20	180	5	31.22	
1	10	20	200	5	31.27	
1	11	20	220	5	31.32	
1	12	20	240	5	31.36	
1	13	20	260	5	31.41	
1	14	20	280	5	31.46	
1	15	20	300	5	31.50	
1	16	20	320	5	31.55	
1	17	20	340	5	31.59	
1	18	20	360	5	31.63	
1	19	20	380	5	31.68	
1	20	20	400	5	31.72	
1	21	20	420	5	31.76	
1	22	20	440	5	31.80	
1	23	20	460	5	31.84	
1	24	20	480	5	31.88	
1	25	20	500	5	31.91	
1	26	20	520	5	31.95	
1	27	20	540	5	31.98	
1	28	20	560	5	32.02	
1	29	20	580	5	32.05	
1	30	20	600	5	32.08	
1	31	20	620	5	32.12	

Source Inventory With Model Grid Coordinate Locations and Sound Pressure Reference Levels

Src Type	Leq dBA	Equipment Description	Distance	<u>grid axis</u>	<u>feet</u>
HVAC	70	Carrier (CA16NA 060) 5-Ton HVAC, Lw of 78 = 70 SPL at 1 meter	3.28 ft	x	20
TRN	68	Mid-Level Transformer (21 KV to 480 v)	3.28 ft	y	20
GEN	77.8	Generac SG250 2.5 MW genset with Type 1 Accoustic Encl.	23 ft		

Source	1	2	3	4	5	6	7	8	9
Source Tag	S1	S2	S3	S4	S5	S6	S7	S8	S9
Source X-coordinate	1960	1700	1680	1260	1260	1340	1360	1880	1920
Source Y-coordinate	1100	900	900	1100	1120	1360	1360	1180	1140
Source Z-coordinate	3	3	3	3	3	3	3	20	10
Source Type (enter abbrev.)	TRN	TRN	TRN	TRN	TRN	TRN	TRN	HVAC	GEN
Source Reference SPL	68	68	68	68	68	68	68	70	77.8
Source Reference Distance (ft.)	3.28	3.28	3.28	3.28	3.28	3.28	3.28	3.28	23
Source Height Above Grade (ft.)	3	3	3	3	3	3	3	20	10

Receiver Inventory With Model Grid Coordinate Locations and Predicted Operational Sound Level Exposure

Receiver	1	2	3	4	5
Source Tag	R1	R2	R3	R4	R5
X-Coordinate	2080	2260	2220	860	220
Y-Coordinate	1320	800	460	500	1100
Modeled SPL	53.6	46.6	42.3	37.2	33.8

