UNION SANITARY DISTRICT

Initial Study/Mitigated Negative Declaration

Standby Power Generation System Upgrade Project

SCHEIDEGGER & ASSOCIATES

February 2019

INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

STANDBY POWER GENERATION SYSTEM UPGRADE PROJECT

February 2019

LEAD AGENCY:
Union Sanitary District
5072 Benson Road
Union City, CA 94587-2508
(510) 477-7608

PREPARED BY:
Scheidegger & Associates
P.O. Box 331
Danville, CA 94526
(925) 210-2271

WITH ASSISTANCE FROM:
Environmental Collaborative (Biology)
Archeo-Tec (Cultural Resources)
Brown and Caldwell (Air Quality)
Charles M. Salter Associates (Noise)

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION AND PROJECT DESCRIPTION

1. Project Title: Standby Power Generation System Upgrade Project

2. Lead Agency Name and Address: Union Sanitary District
5072 Benson Road
Union City, CA 94587-2508

3. Contact Person and Phone Number: Kevin Chun
(510) 477-7608

Paul Scheidegger
Scheidegger & Associates
(925) 210-2271

4. Project Location:

Figure 1 shows the location of the Alvarado Wastewater Treatment Plant (WWTP) where the Standby Power Generation System Upgrade Project (Project) will be located. The site is located within the City of Union City in Alameda County, at 5072 Benson Road.

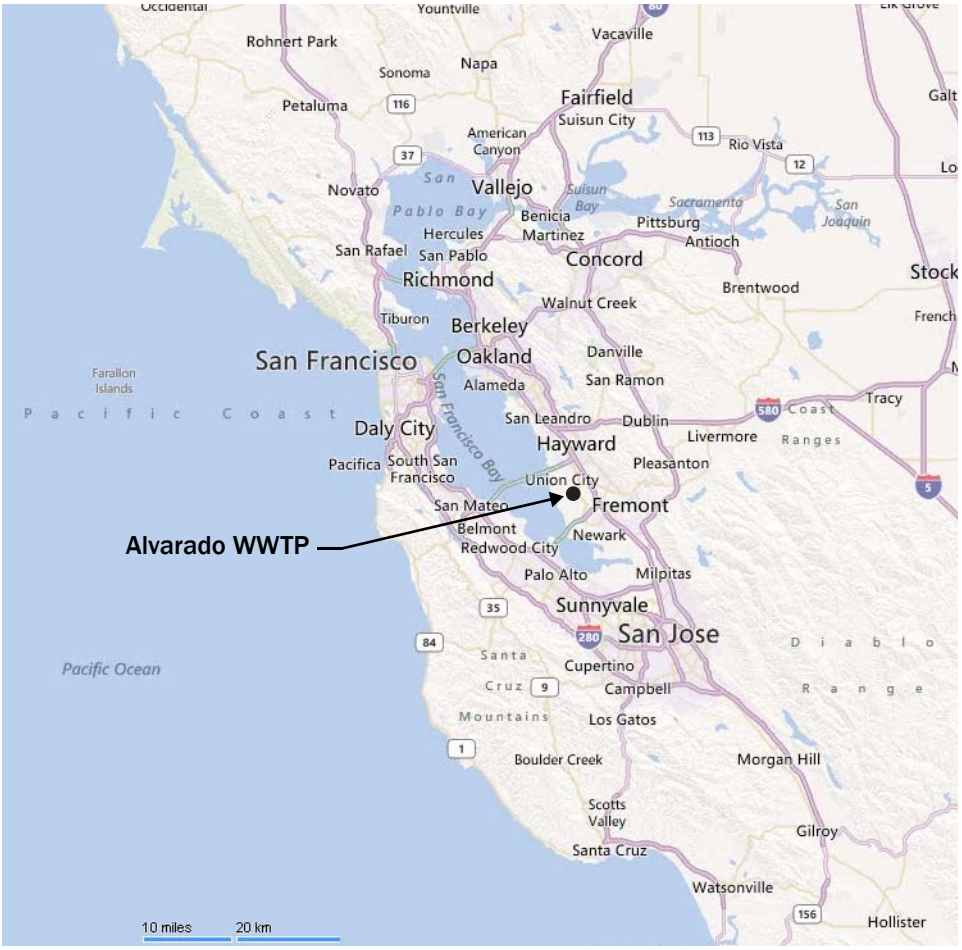
5. Project Sponsor's Name and Address: Union Sanitary District
5072 Benson Road
Union City, CA 94587-2508

6. General Plan Designation: Civic Facility[1]

7. Zoning: Civic Facility[2]

8. Introduction:

Union Sanitary District (USD) is a special district that provides wastewater collection, treatment, and disposal services to residents and businesses within the cities of Fremont, Newark, and Union City in southern Alameda County. USD's wastewater collection system consists of three major pump stations and about 800 miles of pipelines ranging in size from 6 to 48 inches in diameter. All wastewater generated within the service area, including peak wet weather flows, receives full secondary treatment at the USD Alvarado WWTP and is then conveyed to the East Bay Discharger's Authority (EBDA) for discharge to San Francisco Bay.



Source: Microsoft, Bing Maps

Figure 1. Regional Location of the Alvarado WWTP

The WWTP uses grid power from Pacific Gas and Electric (PG&E) , but also generates electrical power on-site via two cogeneration units and solar panels to offset overall plant power demand. The existing standby power system consists of six diesel driven engine generators that range in size from 750 kilowatts (kW) to 1.6 megawatts (MW) in three locations at the WWTP site:

- Standby generators 2 and 3 (each 750 kW) – Generator Room 1 in Building 69.
- Standby generators 5 and 6 (each 750 kW) – Generator Room 2 in Building 71.
- Standby generators 7 and 8 (each 1.6 MW) – Generator Room 3 in Building 78.

The historical (February 2017) plant peak electrical power demand is approximately 2.9 MW with an anticipated additional load of 8.5 MW for future treatment processes to address future nutrient removal regulations.

The Project's Preliminary Design Report identified the following constraints and limitations with the existing facilities.[3]

- The generators were installed between 1978 to 1993 and are reaching the end of their useful life
- The generators are from various manufacturers that complicates operation and maintenance (O&M)
- The control schemes for each set of generators are different and from different vendors, making the system overly complex
- Even with six generators, redundancy is a concern because of the inability to reliably operate the generators together
- Exercising the generators is difficult because there is no load bank to help supplement loading requirements
- The existing facilities are not adequate and cannot easily be expanded for future plant electrical loads
- The control system hardware is antiquated and difficult to service because components are no longer available
- The existing generators are difficult to synchronize and multiple attempts are required to initiate operation

Source: Brown and Caldwell, November 2018

Figure 2. Construction Characteristics of Standby Power Generation System Upgrade Project

9. Project Description:

The location of the Project within the Alvarado WWTP is shown on Figure 2. A new Standby Power Building will be located at the northern end of the WWTP site near the Veasy Street cul-de-sac. A specific site plan for this building will be developed as Project design proceeds and during final design the boundaries of affected areas may change some but these considerations will not affect the environmental analysis in this Initial Study. This building will contain two new minimum rated 3.5 MW standby engine generators each with its own exhaust stack, space for two additional future minimum rated 3.5 MW generators, and associated electrical equipment. Provisions for additional diesel fuel storage are needed. Two new aboveground diesel fuel storage tanks with capacities of 30,000 gallons each, with space for a future tank, will be located within a screen wall near the southwest corner of the Standby Power Building. A concrete equipment pad for future battery storage would also be located in this area. A duct bank corridor will extend along the western border of the WWTP connecting the new standby generators to a new substation. Further discussion on these components is provided below. The source of this information is the Preliminary Design Report (PDR) prepared for the Project and ongoing preliminary design activities by the Project's engineering design firm Brown and Caldwell.[3]

Project Goals

The goals for the new standby power system are to:

- Adequately supply reliable standby power to existing plant electrical loads for peak demand periods, including system "N+1" redundancy[a] for the new generator units.

- Facilitate standby power system expandability to accommodate the anticipated increase in peak plant power demand when the interim replacement of the existing secondary treatment system loads, assumed to be a membrane bioreactor (MBR), are implemented while minimizing system "re-work" and/or stranded assets.

- Select an individual generator unit size that maximizes individual unit rating usage and allows future installed generators to match the size and meet the estimated MBR peak demand loads.

- Due to the rapid changes in equipment technology, minimize or eliminate the need for future retrofit or field modification to initially installed standby power system paralleling switchgear and generator.

---

[a] N+1 redundancy is a form of resilience that ensures system availability in the event of component failure. Components (N) have at least one independent backup component (+1). The level of resilience is referred to as active/passive or standby as backup components do not actively participate within the system during normal operation.

Project Site

The Project site extends from the northernmost to the southernmost portions of the WWTP site. The portion of the site where construction of the new Standby Power Building is planned is currently a mostly vacant parcel of the northern portion of the WWTP. The surface conditions consist of a gently sloping area which is asphalt paved and the site generally ranges from 8 to 10 feet above sea level.

The site is currently developed with a tank structure which is about 35 feet in diameter and 10 feet tall as well as connecting underground pipes located on the west side of the site. These facilities are currently used for facility staff training purposes. The area is also used for storage for a construction trailer and lay-down storage of pipes, manhole segments, and other wastewater conveyance materials.

Demolition

Demolition activities will include removal of the existing tank structure and associated facilities and materials from the site. In addition, as noted on Figure 2, existing Standby Generator Nos. 2, 3, 5, 6, 7, and 8 will be removed along with associated equipment and piping but no excavation is required. Removal of this equipment will occur after successful startup and testing of the Project's new standby generators. In addition, various electrical equipment and structures will be demolished within the WWTP site due to the Project.

Pre-demolition hazardous materials surveys have been completed for structures that are to be demolished.[4, 5] These investigations comply with regulatory agency requirements to address potential worker health and safety issues associated with exposure to materials during demolition. Materials were sampled for the presence of asbestos, lead, and polychlorinated biphenyls (PCBs). Only lead-containing paint was encountered at selected locations. These data will enable the contractor to use proper engineering controls, trained personnel, and personnel protective equipment to address worker health and safety during demolition work in compliance with USD standards and regulatory agency requirements.

Construction

Construction details of the Project are shown on Figure 2. The new L-shaped Standby Power Building will have a construction footprint of approximately 220 feet long, 100-180 feet wide, and six feet deep. The actual building footprint will be approximately 170 feet in length and 65 to 130 feet in width. The new generator building will be a pre-engineered steel building with a metal roof deck. The building will closely resemble the WWTP cogeneration building which is shown on Figure 3. The building will be about 20 to 30 feet tall. Exterior cladding of the new building will be specified to match the

existing cogeneration building with insulation to meet regulatory requirements for soundproofing. Lighting and ventilation will be included in this pre-engineered building.

A reinforced concrete mat foundation will be used to support the building to assist in mitigating differential settlement as recommended in the Project's Geotechnical Design Report.[6] Piles below the generator units will be used to support the heavy mass and account for vibration. Either cast-in-drilled-hole (CIDH) piles or augercast piles will be used with no pile driving. The generator units would sit on a separate, isolated concrete slab with grout between the slab and concrete mat. Pipes and conduits to the generators will be provided with flexible fittings.

A duct bank corridor extends along the western portion of the WWTP site. Starting at the new Standby Power Building, an approximate 360-foot segment of the corridor will require new trenching which will be three to six feet wide and three feet deep. As shown on Figure 2, the next segment of the duct bank corridor will be shared with USD's preceding Primary Digester No. 7 Project and no new excavation will be required. The final segment of the corridor requires only pulling new wire through existing spare conduits and new excavation is not needed.

Two new 30,000 gallon fuel storage tanks, with space for a future tank, will be located near the southwestern corner of the Standby Power Building. Figure 3 also shows a view of fuel tanks that closely resemble the tanks to be installed. The tanks will be constructed on a reinforced concrete slab foundation with shallow excavation and with required provisions for spill containment and drainage management.

A future battery storage area will be located just south of the fuel storage area. Though not being designed initially, it will be a concrete equipment pad only with shallow excavation. The batteries would be connected to the distribution switchgear and help supplement the utility power and reduce the carbon footprint of the plant energy usage.

A new substation is proposed at the southern end of the WWTP site. This central substation will replace the WWTP's Substation No. 2 and the Odor Control Building Substation. Excavation limits for the building would be 50 feet long by 30 feet wide and two to four feet deep. The height would be about 10 feet. Provisions will also be included for spill containment and drainage management.

Any excavations greater than five feet in depth must comply with Section 6705 of the Labor Code and include provisions for shoring, bracing, sloping, and dewatering. Dewatering may be required due to high groundwater conditions and fluctuating groundwater levels. Thus, the Contractor would be prepared to design and implement a groundwater dewatering system.

Cogeneration Building

Fuel Storage Tanks

Source: Brown and Caldwell, November 2018

Figure 3. View of the WWTP Cogeneration Building and Representative Fuel Storage Tanks

Sitework and Truck Load Estimates

Table 1 summarizes the sitework needed for the Project. Excavation, backfill, and concrete quantities are estimated along with the number of truck loads. Sitework needed for the generator building is the largest contributor to the total shown. A grand total of 15,728 cubic yards (CY) of soil and concrete will be handled requiring 1,576 truck loads. Soil movement (excavation and backfill) totals 251 CY/day or about 25 truck loads/day, assuming 58 days for excavation, lay, and backfill per a preliminary estimate of the construction schedule. The number of trucks is a theoretical maximum as the site could not accommodate 25 trucks/day and this would be adjusted downward when the final construction plan is developed. In all likelihood, 20 trucks/day or 2 to 3/hour would be expected. Concrete import will average 20 CY/day, or about 2 trucks/day.

Table 1. Summary of Excavation, Backfill, and Concrete Needs

Construction Component	Generator Building[a]		Fuel Storage[a]		Electrical Duct Bank[a]		New Substation No. 2[a]		Demolition[6]		Grand Total	
	Qty CY	No. of Trucks[d]	Qty CY	No. of Trucks[d]	Qty CY	No. of Trucks[d]	Qty CY	No. of Trucks[d]	Qty CY	No. of Trucks[d]	Qty CY	No. of Trucks[d]
Total Excavation[c]	7388	739	667	67	89	9	372	38	400	41	8161	818
Backfill (imported)	6177	618	444	45	12	2	254	26	0	0	6431	644
Concrete (Imported)	1018	102	222	23	30	3	119	12	0	0	1136	114
Total	14,583	1459	1333	135	130	14	744	76	400	41	15,728	1576

[a] See Figure 2 for general excavation details, refined as needed for this table.
[b] Demolition includes the removal of the primary training structure, INKA MCC building, chemical containment structure, and existing substation Nos. 1 & 2
[c] Excavated soil will require disposal and not be reused.
[d] Truckload capacity is 10 CY

Source: Brown and Caldwell, December 2018.

Operation

The Project's two new minimum rated 3.5 MW standby generators will replace operation of the six existing WWTP standby generators. The new standby generator facility will address aging infrastructure and reliability issues with the current standby power system. The new Standby Power Building will also include space for two additional future generators to address future regulations.

An electrical load analysis was completed by Brown and Caldwell to analyze and estimate WWTP demand loads for build out (anticipated to occur by 2060) and interim

conditions (defined as year 2040).[7] This study assumed that a MBR may be constructed to replace the existing secondary treatment system to address potential future nutrient removal regulations.

The generator set will meet the requirements of Best Available Control Technology (BACT) and will meet U.S. Environmental Protection Agency Tier 2 exhaust emission rates. Emission limitations are specified by the engine tier under the federal off-road engine rules and by the California's Air Resources Board's Airborne Toxic Control Measure. Those emission rates are shown in Table 2.

Table 2. Emission Limits for Tier 2 Emergency Engines

Pollutant	Units
NO_x + NMHC	4.8 grams/bhp-hr
CO	2.6 grams/bhp-hr
PM	0.15 grams/bhp-hr

NO_x = nitrogen oxide
NMHC = nonmethane hydrocarbons
Bhp-hr = brake horsepower per hour
CO = carbon monoxide
PM = particulate matter

In the air permit application to the Bay Area Air Quality Management District (BAAQMD), the calculation of criteria pollutant emission rates must assume the standby generator set operates 500 hours/year and 50 hours/year for calculation of diesel particulate matter. In 2017, the actual hours of operation of the six existing generators totaled 44.5 hours which includes time for completing the manufacturers recommendations for maintenance and actual emergency use.[8]

Staging Areas/Parking/Storage

While the immediate Project area has limited space for support functions, the northern portion of the WWTP has the necessary area for staging, parking, and storage of materials (Figure 2). It is assumed that excavated soils will be transported off-site. Haul traffic for export of materials as well as import of materials and supplies would use the access roadway shown on Figure 2.

Clean Water State Revolving Fund and CEQA Approach

USD may secure funding for the Project from the State Water Resources Control Board (SWRCB) Clean Water State Revolving Fund (CWSRF) Program. The CWSRF Program is partially funded by the U.S. Environmental Protection Agency (EPA) and, by agreement, is administered by the SWRCB. Because of partial federal funding, the program is subject to federal environmental regulations, most notably the federal Endangered Species Act, the National Historic Preservation Act, and the General Conformity Rule for the Clean Air Act, among others. Instead of the National Environmental Policy Act, EPA has chosen to use the California Environmental Quality Act (CEQA) as the compliance base for California's CWSRF Program. To comply with applicable federal statutes and authorities, EPA established specific "CEQA-Plus" requirements in the Operating Agreement with the SWRCB for administering the CWSRF Program. The appropriate document for CEQA compliance for the proposed Project is an Initial Study/Mitigated Negative Declaration (IS/MND) pursuant to Section 15162 of the 2015 CEQA Guidelines. CEQA-Plus requirements are addressed in this document.

Schedule

The construction schedule is projected to begin by late 2019 to early 2020 and take 18 to 24 months to complete with about one year of this time needed for heavy construction work.

10. Surrounding Land Use

Figure 4 shows the location of the Project area and USD's Alvarado WWTP relative to surrounding land uses. Surrounding land uses include the Eden Landing Ecological Reserve, the Old Alameda Creek Channel, light industrial use, residential, and open space.

The Project site is located within the Alvarado WWTP. The WWTP borders the eastern bank of Old Alameda Creek, a channelized Alameda County Flood Control & Water Conservation District (ACFC&WCD) flood control channel that experiences tidal fluctuations and is bound by levees on either side. The Eden Landing Ecological Reserve

Source: Scheidegger & Associates, December 2018

580′ 290′ 0 580′

Scale in Feet

Figure 4. Land Use Characteristics

includes restored salt ponds, adjacent diked marshes and upland transitional areas which are managed for water birds and tidal marsh species.

The location of a potential religious temple is also shown on Figure 4 which is about 200 to 300 feet from the new Standby Power Building. The applicant, Shri Guru Ravidass Sabha Bay Area, has proposed a new 15,707 square foot faith-based facility and associated on- and off-site improvements on a 1.9 acre parcel. According to the City of Union City staff report on the project, typically there would be about 20-30 visitors to the facility on weeknights and approximately 200 visitors on Saturdays and Sundays.[9] An IS/MND was prepared on the project in October 2017.[10] The project is currently within a two-year time period for acquisition of Union City land use approvals and permit acquisitions

The open space area shown on Figure 4 is owned by California State Lands Commission and the ACFC&WCD and is managed for flood control purposes. In addition to Old Alameda Creek, ACFC&WCD has a series of flood control channels (G-1, G-2, and G-6) which border the WWTP. Discharge of the drainage is via an outfall to Alameda Creek.

The open space area provides a buffer between the treatment facility and residential development further to the east. This is consistent with the Union City's 511 Areas Specific Plan which encompasses most of the WWTP site.[11] As shown in Figure 4, the Project location is about 200 to 1,300 feet from the closest existing residences to the north and east.

11. Other Public Agencies Whose Approval is Required

- Authority to Construct and Permit to Operate – BAAQMD.
- Possible permit from ACWD for installation of dewatering wells, exploratory holes and other excavations pursuant to Ordinance No. 2010-01.
- SWRCB, Division of Financial Assistance – funding through the CWSRF loan program.

12. Consultation with Native American Tribes

Notification requests from local Native American tribes pursuant to Public Resources Code Section 21080.3.1, subd. (b) have not been received by USD. However, local Native American contacts were consulted during preparation of the recent cultural resource assessment for the USD Emergency Outfall Improvements Project.[12]

13. Environmental Factors Potentially Affected:

The environmental factors checked below would be potentially affected by this Project, involving at least one impact that is "Less Than Significant with Mitigation Incorporated" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture & Forest Resources	☐ Air Quality
☒ Biological Resources	☒ Cultural Resources	☐ Geology / Soils
☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials	☐ Hydrology / Water Quality
☐ Land Use / Planning	☐ Mineral Resources	☒ Noise
☐ Population / Housing	☐ Public Services	☐ Recreation

Chapter 2
DETERMINATION

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 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 (1) have been analyzed adequately in an earlier **EIR** or **NEGATIVE DECLARATION** pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier **EIR** or **NEGATIVE DECLARATION**, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Raymond Chau, P.E.
CIP Coach

02/07/2019
Date

Chapter 3

DISCUSSION OF ENVIRONMENTAL CHECKLIST

A discussion of the environmental checklist is included below. In general, the format followed includes a discussion of the setting and an impact analysis for each resource category. In some resource categories, control measures are identified to minimize potential impacts. Control measures are procedures known to further reduce the potential for impacts based on regulatory agency requirements, standards in the industry, and construction/operating experience. Reference and information resources for the checklist are included in Chapter 4. As appropriate, Initial Study (IS) mitigation measures are included to reduce impacts to less than significant levels. The Mitigation Monitoring and Reporting Plan is included in Appendix A.

A. AESTHETICS

SETTING

The Union Sanitary District (USD) Standby Power Generation System Upgrade Project (Project) is located within USD's Alvarado Wastewater Treatment Plant (WWTP). Immediate surrounding land uses include the Eden Landing Ecological Reserve, the Old Alameda Creek Channel, light industrial use, residential, and open space. The closest residential land uses are located about 200 to 1,300 feet to the north and east. A potential future temple is located about 200 feet from the new Standby Power Building.

IMPACT ANALYSIS

Control Measures Incorporated by USD

A1. Throughout the period of demolition and construction, the Contractor shall keep the work site free and clean of all rubbish and debris, and shall promptly remove from the site, or from property adjacent to the site of the work, all unused and rejected materials, surplus earth, concrete, plaster, and debris.

A2. Upon completion of the work, and prior to final acceptance, the Contractor shall remove from the vicinity of the work all plant, surplus material, and equipment belonging to him or used under his direction during construction.

Significance Criteria

RESOURCE CATEGORY / SIGNIFICANCE CRITERIA	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Beneficial Impact	Information Sources
A. <u>AESTHETICS</u>						
Would the Project:						
1) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒	☐	13
2) Substantially damage scenic resources, including, but not limited to, trees, rock, outcroppings, and historic buildings within a state or County scenic highway or County-designated scenic road?	☐	☐	☐	☒	☐	13
3) Substantially degrade the existing visual character or quality of the site and its surroundings that are open to public views?	☐	☐	☒	☐	☐	13
4) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	☐	☐	☐	☒	☐	13

No Impacts: Criteria A1, A2, A4

The Project will be constructed within the existing WWTP site and will not affect a scenic vista or other scenic resource (Criteria A1 and A2). Some additional lighting will be needed but will not be visually distinguishable from existing WWTP lighting and does not represent a substantial new source of light or glare (Criterion A4).

Less than Significant Impacts: Criterion A3

During the approximate 12-month period when heavy construction work will occur, some heavy equipment will occupy the Project site and the staging area (Figure 2) will be used to temporarily store construction supplies and excavated soil. While these activities may be viewable from surrounding land uses, USD frequently has ongoing construction projects at the WWTP, and the Contract Documents will require the Contractor to use best management practices (BMPs) that address daily housekeeping and final site cleanup (Control Measures A1 and A2).

As discussed in Chapter 1, the Standby Power Building that will be 20-30 feet tall (see Figure 3) and fuel storage tanks (see Figure 3) are the main above-ground features of the Project. These facilities will be constructed in an area of the WWTP site reserved for future plant development, will be seen as an extension of plant facilities, and will not be visually

distinguishable from other WWTP facilities. The visual impact associated with construction and operation of the Project is less than significant.

Mitigation Measures

None required.

B. AGRICULTURE AND FOREST RESOURCES

IMPACT ANALYSIS

Control Measures Incorporated by USD

None

Significance Criteria

RESOURCE CATEGORY / SIGNIFICANCE CRITERIA	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Beneficial Impact	Information Sources
B. <u>AGRICULTURE AND FOREST RESOURCES</u>						
Would the Project:						
1) 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?	☐	☐	☐	☒	☐	13, 14
2) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒	☐	2, 13
3) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)) or timberland (as defined in Public Resources Code section 4526); or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒	☐	13

	RESOURCE CATEGORY / SIGNIFICANCE CRITERIA	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Beneficial Impact	Information Sources
4)	Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒	☐	13
5)	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?	☐	☐	☐	☒	☐	13

No Impacts: Criteria B1-B5

The Project will be constructed within the WWTP. The Project area is classified as Other Land in the California Farmland Mapping and Monitoring Program.[14] Criteria B1 through B5 are not relevant to the Project and no impact would occur. Accordingly, pursuant to California Environmental Quality Act (CEQA-Plus) requirements, the Project would have no impact relative to the Federal Farmland Protection Policy Act.

Mitigation Measures

None required.

C. AIR QUALITY

The proposed Project is located in Union City within the southern portion of Alameda County, and part of the nine-county San Francisco Bay Area Air Basin (Air Basin). The local air quality regulatory agency responsible for the Air Basin is the Bay Area Air Quality Management District (BAAQMD).

SETTING

Criteria Air Pollutants

The Federal and California Clean Air Acts (CAAs) have established ambient air quality standards for common pollutants. The ambient air quality standards are intended to protect human health and welfare. At the federal level, national ambient air quality standards have been established for criteria pollutants. These criteria pollutants include carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), respirable particulate matter with a diameter less than 10 microns (PM_{10}), fine particulate matter with a diameter less than 2.5 microns ($PM_{2.5}$), sulfur dioxide (SO_2), and lead.

California has adopted ambient air quality standards which are, in general, more stringent than the national ambient air quality standards, and include other pollutants not regulated at the

federal level (sulfates, hydrogen sulfide, and vinyl chloride). National and state ambient air quality standards are shown in Table 3. Both the National and California ambient air quality standards have been adopted by the BAAQMD.

Table 3 – State and National Air Quality Standards and Summary of Measured Air Quality Exceedances in the Project Area (2015 – 2017)

Pollutant/ Averaging Period	Primary Standard		Year	Maximum Concentration [a]	Days Exceeding State/National Standard
	State	National			
Ozone 1-hour	0.09 ppm	none	2015	0.094	0/0
			2016	0.087	0/0
			2017	0.0021	3/0
Ozone 8-hour	0.70 ppm	0.70 ppm	2015	0.081	2/2
			2016	0.066	0/0
			2017	0.098	4/4
Carbon Monoxide 1-hour	20 ppm	35 ppm	2015	2.4	0/0
			2016	2	0/0
			2017	2.1	0/0
Carbon Monoxide 8-hour	9 ppm	9 ppm	2015	1.8	0/0
			2016	1.4	0/0
			2017	1.8	0/0
Nitrogen Dioxide 1-hour	0.18 ppm	0.100 ppm	2015	0.049	0/0
			2016	0.051	0/0
			2017	0.0077	0/0
Nitrogen Dioxide Annual	0.030 ppm	0.053 ppm	2015	0.013	0/0
			2016	0.011	0/0
			2017	0.0017	0/0
Sulfur Dioxide 1-hour	None	0.075 ppm	2015	0.0031	0/0
			2016	0.018	0/0
			2017	0.0036	0/0
Sulfur Dioxide 24-hour	0.04 ppm	none	2015	0.0011	0/0
			2016	0.0008	0/0
			2017	0.0011	0/0
Respirable Particulate Matter (PM_{10}) 24-hour	50 µg/m^3	150 µg/m^3	2015	58	1/0
			2016	41	0/0
			2017	21.6	0/0
Respirable Particulate Matter (PM_{10}) Annual	20 µg/m^3	none	2015	22	[b]/0
			2016	18.3	0/0
			2017	21.6	[b]/0
Fine Particulate Matter ($PM_{2.5}$) [a] 24-hour	None	35 µg/m^3	2015	49.4	0/2
			2016	22.6	0/0
			2017	49.7	0/6
Fine Particulate Matter ($PM_{2.5}$) Annual	12 µg/m^3	12.0 µg/m^3	2015	10	0/0
			2016	8.4	0/0
			2017	9.5	0/0

Source: BAAQMD, see http://www.baaqmd.gov/about-air-quality/air-quality-summaries

Notes: ppm = parts per million, µg/m^3 = micrograms per cubic meter, ND = No data available, NA = Not applicable

[a] All pollutant concentrations were measured at the San Jose monitoring station

[b] Data not reported

Ambient concentrations of criteria pollutants are monitored in the Air Basin by the BAAQMD. The San Jose station is the closest to the Project site. Table 3 includes a summary of the monitored maximum concentrations and the number of occurrences of exceedances of the state/national ambient air quality standards for the three-year period from 2015 through 2017.

Table 3 shows that over the last three years the following standards were exceeded:

- 1-hour state and 8-hour state/national standards for O_3
- 24-hour state PM_{10} standard
- Annual PM_{10} standard
- 24-hour national $PM_{2.5}$ standard

Toxic Air Contaminants

In addition to "criteria" air pollutants, there is another group of substances found in ambient air referred to as Toxic Air Contaminants (TACs). These contaminants tend to be localized and are found in relatively low concentrations in ambient air. However, they can result in adverse health effects. Sources of TACs include industrial processes such as petroleum refining and manufacturing, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. One of the TACs of greatest concern in California is diesel particulate matter (DPM). TACs are regulated at the local, state, and federal level.

Regulatory and Planning Framework

Federal, state, and regional agencies regulate air quality in the Air Basin. At the federal level, the U.S. Environmental Protection Agency (EPA) is responsible for overseeing implementation of the Federal CAA. The California Air Resources Board (CARB) is the State agency that regulates mobile sources throughout the state and oversees implementation of the state air quality laws and regulations, including the California CAA. The primary agency that regulates air quality in the Project area is the BAAQMD. The BAAQMD has permit authority over stationary sources, acts as the primary reviewing agency for environmental documents, and develops regulations that must be consistent with or more stringent than, federal and state air quality laws and regulations.

Federal Air Quality Regulations. The Federal CAA requires CARB, based on air quality monitoring data, to designate portions of the state where the national ambient air quality standards are not met as “nonattainment areas”. Because of the differences between the national and state ambient air quality standards, the designation of nonattainment areas is different under the federal and state legislation. Areas that meet the air quality standards are considered to be in attainment of the standards. Areas where there is no monitoring data available or insufficient data to classify are considered unclassified, which for regulatory purposes is treated as an attainment area.

The Bay Area as a whole does not meet national ambient air quality standards for O_3 and $PM_{2.5}$. The EPA has classified the region as marginal nonattainment for 8-hour O_3. In October 2009 the EPA designated the Bay Area as nonattainment for 24-hour $PM_{2.5}$ standard.[15]

The Bay Area is considered as attainment or unclassifiable with respect to the national air quality standards for all other pollutants. The EPA requires states that have areas that are not in compliance with the national standards to prepare and submit air quality plans showing how the standards would be met. If the states cannot show how the standards would be met, then they must show progress toward meeting the standards. These plans are referred to as the State Implementation Plan (SIP). On January 9, 2013, the EPA issued a final rule to determine that the San Francisco Bay Area has attained the national 24-hour $PM_{2.5}$ air quality standard. This action suspends federal SIP planning requirements for the Bay Area.

Projects seeking federal funding must comply with the Federal CAA conformity requirements. As part of the SIP, California has incorporated the federal General Conformity Rule. The EPA's Conformity Rule, as promulgated in 40 CFR Part 93 Subpart B, and 40 CFR Part 51, Subpart W, implements the conformity requirements of Section 176(c) of the 1990 Amendments to the Federal CAA. Conformity to the SIP is defined in the CAA as requiring all federal agencies to ensure that any agency activity conforms with an approved SIP in nonattainment or maintenance areas. Compliance with the SIP assists in eliminating or reducing the number of violations of the national ambient air quality standards, which expedites attainment of the standards. The General Conformity Rule requires that the total of direct and indirect emissions of nonattainment or maintenance area criteria pollutants, including ozone precursors (reactive organic gases and nitrogen oxides) and $PM_{2.5}$ precursors (SO_2, NO_2, and reactive organic compounds (ROG) or ammonia) be considered in determining conformity.

If a federal action, such as Clean Water State Revolving Fund (CWSRF)-funded projects, is to take place in a nonattainment or maintenance area, it is subject to a General Conformity evaluation. This determination can take one of three forms: (1) If the action meets certain criteria, it may be specifically exempted, regardless of whether the action would emit pollutants of concern; (2) if the action is determined to emit pollutants below specified de minimis thresholds and the potential emission levels are not regionally significant (less than 10 percent of the region's emissions for a particular pollutant), the action can be assumed to conform with the SIP; and (3) for actions that do not fall under either of these two categories, a complete conformity determination must be made. Specifics of this process are listed in 40 CFR 93, Subpart B.

For CWSRF-funded projects, a General Conformity analysis applies only to projects in a federal nonattainment area or an attainment area subject to a maintenance plan and applies to those pollutants that the area has been designated as nonattainment or maintenance. As described above, the Bay Area has been designated nonattainment for O_3 and $PM_{2.5}$.

California Air Quality Regulations. The California CAA outlines a program for areas in the state to attain the California ambient air quality standards by the earliest practical date. The California CAA set more stringent air quality standards for most of the pollutants covered under national standards, and additionally regulates other pollutants. If an area does not meet the California ambient air quality standards, the CARB designates the area as a nonattainment area. With respect to the state air quality standards, the Bay Area is a State nonattainment area for ozone and particulate matter (PM_{10} and $PM_{2.5}$), and either attainment or unclassified for other pollutants.[15] The California CAA requires local air pollution control districts to prepare air quality attainment plans for pollutants, except for particulate matter, that are not in attainment with the state standards. These plans must provide for district-wide emission reductions of five percent per year averaged over consecutive three-year periods or if not, provide for adoption of "all feasible measures on an expeditious schedule".

Regional Air Quality Regulations and Planning. Air quality in the Project region is regulated by the BAAQMD. The BAAQMD regulates stationary sources (with respect to federal, state, and local regulations), monitors regional air pollutant levels (including measurement of toxic air contaminants), develops air quality control strategies and conducts public awareness programs

The most recent air quality air plan is the 2017 Clean Air Plan (CAP) that was adopted by BAAQMD in April 2017.[16] The 2017 Plan provides a regional strategy to protect public health and protect the climate. To protect public health, the plan describes how the Air District will continue making progress toward attaining all state and federal air quality standards and eliminating exposure to air pollution among Bay Area communities. The 2017 Plan includes a wide range of control measures designed to decrease emissions of the air pollutants that are most harmful, such as particulate matter, ozone, and toxic air contaminants; and to decrease emissions of carbon dioxide by reducing fossil fuel combustion. The 2017 Plan represents the Bay Area's most recent assessment of the region's strategy to attain the State and national ozone and $PM_{2.5}$ standards.

The BAAQMD has also developed California Environmental Quality Act (CEQA) Air Quality Guidelines that establish significance thresholds for evaluating new projects and plans and provide guidance for evaluating air quality impacts of projects and plans.[17] The Air Quality Guidelines provide procedures and significance thresholds for evaluating potential construction and operational-related impacts during the environmental review process consistent with CEQA requirements.

In June 2010, BAAQMD adopted thresholds of significance to assist in the review of projects under CEQA. These thresholds were designed to establish the level at which BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA and were included in the Air District's most recent CEQA Air Quality Guidelines (updated May 2017).[17]

IMPACT ANALYSIS

Control Measures Incorporated by USD

C1. Obtain An Authority to Construct and Permit to Operate from the BAAQMD and comply with permit conditions, imposed by the BAAQMD. At present, the BAAQMD has not yet performed their evaluation, nor have they defined conditions that would be imposed. Of particular note, removal of the existing standby engines reduce DPM emissions from the facility overall.

C2. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered as needed to control dust emissions.

C3. All haul trucks transporting soil, sand, or other loose materials off-site shall be covered.

C4. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.

C5. All areas to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading.

C6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

C7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.

Significance Criteria

RESOURCE CATEGORY / SIGNIFICANCE CRITERIA	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Beneficial Impact	Information Sources
C. AIR QUALITY Would the Project:						
1) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐	☐	13, 16, 17
2) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐	☐	13, 16, 17
3) 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 (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐	☐	13, 16, 17
4) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐	☒	13, 16, 17
5) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒	☐	13

No Impacts: Criterion C5

Odorous emissions are not an issue with the Project and no impact will occur.

Air Quality Plan: Criterion C1

The BAAQMD CEQA Guidelines recommend that a project's consistency with the current CAP be evaluated using the following three criteria:

1. The project supports the goals of the Air Quality Plan,
2. The project includes applicable control measures from the CAP, and
3. The project does not disrupt or hinder implementation of any control measures from the CAP.

If it can be concluded with substantial evidence that a project would be consistent with the above three criteria, then the BAAQMD considers it to be consistent with the air quality plans prepared for the Bay Area.[12]

The primary goals of the 2017 CAP are to attain air quality standards, reduce population exposure and protect public health in the Bay Area, and reduce greenhouse gas (GHG) emissions and protect the climate. The BAAQMD-recommended guidance for determining if a project supports the goals in the current CAP is to compare project-estimated emissions with BAAQMD thresholds of significance. If project emissions would not exceed the thresholds of significance after the application of all feasible mitigation measures, the project would be consistent with the goals of the 2017 CAP. As indicated in the following discussion with regard to air quality item 2), the Project would result in a less than significant impact related to construction emissions with the implementation of the BAAQMD's applicable recommended fugitive dust control measures, which will be included in the Contract Documents. In addition, operational emissions would also not exceed the thresholds. Therefore, the Project would be considered to support the primary goals of the 2017 CAP.

The 2017 CAP contains 85 control measures aimed at reducing air pollution in the Bay Area. Projects that incorporate all feasible air quality plan control measures are considered consistent with the CAP. Two of the stationary source control measures are applicable to operation of water pollution control plants: WR1 (Limit GHGs from POTWs [Publicly-Owned Treatment Works]) and WR2 (Support Water Conservation). While both of these measures do not contain specific emissions control strategies, the Project would be consistent with WRI as there would be an operational emissions decrease, as discussed further below under Criterion C2, and would not affect production of recycled water at the Facility. For these reasons, the Project with modifications would not be inconsistent with nor hinder implementation of the 2017 CAP control measures.

Air Quality Standards: Criterion C2

The Federal CAA and the California CAA both require the establishment of standards for ambient concentrations of air pollutants, called Ambient Air Quality Standards (AAQS). The Bay Area Air Basin experiences occasional violations of ozone and particulate matter (PM_{10} and $PM_{2.5}$) standards. Therefore, the Project area currently is designated as a non-attainment area for violation of the state 1-hour and 8-hour ozone standards, the federal ozone 8-hour standard, the state respirable particulate matter (PM_{10}) 24-hour and annual average standards, the state fine particulate matter ($PM_{2.5}$) annual average standard, and the federal $PM_{2.5}$ 24-hour standard. The Project area is designated as attainment for all other state and federal standards.[15]

Project Construction. Construction activities associated with the Project would involve use of equipment that would emit exhaust containing ozone precursors (reactive organic gases or ROG, and nitrogen oxides, or NO_x). On-site and off-site vehicle activity associated with material transport and construction worker commutes would also generate emissions. Emission levels

for these activities would vary depending on the number and types of equipment used, duration of use, operation schedules, and the number of construction workers. Criteria pollutant emissions of ROG and NO_x from these emission sources would incrementally add to the regional atmospheric loading of ozone precursors during Project construction. All assumptions and calculations used to estimate the Project-related construction emissions are provided in Appendix B.[18]

Table 4 summarizes the construction emissions relative to daily and annual BAAQMD emissions thresholds, as well as to Federal conformity thresholds. As can be seen, daily and annual construction emissions are well below BAAQMD thresholds, so the Project would not result in or contribute to a violation of an air quality standard and the impact would be less than significant. With respect to the General Conformity requirements, emissions at these levels are considerably less than the applicable General Conformity de minimis thresholds and further conformity evaluation is not required; thus the Project is compliant with the Federal CAA.

Table 4. Significance of Construction Emissions

	Average daily emissions (pounds/day)					
Emissions source/threshold	**ROG**	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Construction	0.36	9.17	0.60	0.002	0.35	0.35
BAAQMD Threshold	54	54	-	-	82[a]	54[a]
Exceed threshold?	No	No	No	No	No	No
	Annual emissions (tons/project [b])					
Emissions source/threshold	**ROG**	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Construction	0.057	1.435	0.094	0.0015	0.054	0.054
BAAQMD threshold	10	10	-	-	15	10
Exceed threshold?	No	No	No	No	No	No
Federal conformity threshold	100	100	-	100	-	100
Exceed threshold?	No	No	No	No	No	No

[a] Applies to construction exhaust emissions only.

[b] As the Project will take 313 days of actual construction time, emissions are presented as tons/Project in lieu of tons/year.

Source: Appendix B

In addition to exhaust emissions, emissions of fugitive dust would also be generated by construction activities associated with grading and earth disturbance, travel on paved and

unpaved roads, etc. Such emissions could result in a potentially significant impact. With regard to fugitive dust emissions, the BAAQMD Guidelines focus on implementation of recommended dust control measures rather than a quantitative comparison of estimated emissions to a significance threshold. For all projects, the BAAQMD recommends the implementation of its Basic Control Mitigation Measures which are included as Control Measures C1-C7. These measures would be incorporated into the Contract Documents. Therefore, the Project would not cause violations of the air quality standards due to fugitive dust and the impact is less than significant.

Project Operation. Operational emissions are associated with the new engine generators. State regulations on non-emergency use of emergency engines allow up to 50 hours per year per engine, and there is no limit on emergency use as specified in 17 CCR 93115.6(a)(3)(A)(1)(c). Table 5 compares the total operational emissions for the two new engine generators to BAAQMD and Federal conformity thresholds. Appendix C provides the assumption used in the emissions calculations. As can be seen, emission levels are well below the thresholds, resulting in a less than significant impact. Accordingly, pursuant to CEQA-Plus requirements, the Project is in compliance with the Federal CAA.

As discussed in Chapter 1, the two new engine generators will replace operation of six existing engine generators that were manufactured between 1978 and 1994/1995. Newer engine generators have lower air pollutant emission rates than older generators. Table 6 compares the emission rates of the new engines to those of the older existing engines. As can be seen from Table 6, the new generators will provide a substantial improvement to criteria pollutant emission rates.

Cumulative Impacts: Criterion C3

According to the BAAQMD, no single project will, by itself, result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. In addition, according to the BAAQMD CEQA Air Quality Guidelines, if a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions.[17] Alternatively, if a project does not exceed the identified significance thresholds, then the project would not be considered cumulatively considerable and would result in less than significant air quality impacts. Based on the Table 5, the Project would not result in a significant cumulative impact.

Substantial Pollutant Concentrations (Criterion C4)

Criterion C4 addresses exposure of sensitive receptors to substantial pollutant concentrations. This issue is addressed below relative to the construction and operation of the Project.

Table 5. Significance of Operations Emissions

Emissions	ROG	SO_2	NO_x	Exhaust PM_{10}	Exhaust $PM_{2.5}$
	Lbs/day				
Daily emissions	0.5	-	14.2	0.2	0.2
BAAQMD threshold	54	-	54	82	54
Significant impact (?)	No	-	No	No	No
	Tons/year				
Annual emissions	0.1	0.001	2.6	0.04	0.04
BAAQMD threshold	10	-	10	15	10
Exceed threshold (?)	No	-	No	No	No
Federal conformity threshold	100	100	100	100	100
Exceed threshold (?)	No	No	No	No	No

Source: Brown and Caldwell, December 2018.

Table 6. Comparison of Emission Rates of Existing and New Project Engine Generators

Criteria Pollutant	Emission rate, g/bhp-hr[a]	
	Existing Engines[b]	New Engines[c]
NO_x	10.89	4.17
Non-methane hydrocarbon	0.32	0.16
CO	2.49	1.3
PM_{10}	0.32	0.07

[a] Grams per brake horsepower per hour
[b] Emission factors derived from USEPA AP-42, Table 3.4-1
[c] Emission factors compiled from D2 Cycle testing from the Manufacturer Spec Sheet

Source: Brown and Caldwell, December 2019.

Construction. Construction activities associated with the Project would result in the generation of exhaust emissions that contain air pollutants, including particulate matter (PM_{10} and $PM_{2.5}$), the majority of which would be DPM. Under the California Environmental Protection Agency guidelines, DPM is used as a surrogate measure of exposure for the mix of chemicals that make up diesel exhaust as a whole.

The nearest existing off-site sensitive residential receptors are located about 300 to 1100 feet to the north and east of the Project site,respectively and the future temple would be located about 200 feet away (Figure 4). The BAAQMD has identified a distance of 1,000 feet from the source to the closest sensitive receptor locations within which community impacts are likely.[17] The distance (over 1,000 feet) between construction activities to nearby receptors would help reduce exposure to existing residential land uses. Furthermore, PM_{10} and $PM_{2.5}$ emissions associated with construction of the Project would be 0.35 pounds per day. At these emission levels, and with construction activities extending over a duration of only about 12 months, this would not lead to a new significant increase in exposure to TACs. Therefore, the impact of exposure of sensitive receptors to pollutants from construction would be less than significant.

Operation. The new replacement engine generators are an operational emissions source that will generate TACs and are regulated by the BAAQMD. The Air Permit Application for the Project included a calculation of TAC emissions during operation of the engine generators.[19] Removal of the existing engine generators will result in a reduction in the TAC emissions overall. Thus, replacement of the existing engine generators is a beneficial impact of the Project due to reduced exposure of sensitive receptors to substantial pollutant concentrations.

Mitigation Measures

None required.

D. BIOLOGICAL RESOURCES

SETTING

A Biological Resource Assessment (BRA) for the proposed Project was prepared by Environmental Collaborative and is included in Appendix D.[20] The reader is referred to this report for a detailed discussion of the setting and impact analysis.

Existing Conditions

For the purpose of the BRA, the entire WWTP is the Area of Potential Effects (APE). The APE provides very little value in terms of possible wildlife habitat given its developed condition, absence of vegetative cover, and intensity of human disturbance. No indications of occupation by western burrowing owl were observed anywhere within the APE during the field reconnaissance surveys, and no evidence of nesting by any bird species in any of the trees in the vicinity of the APE were observed.

Special-Status Species

Suitable habitat for special-status animal species is absent from the APE. This includes absence of suitable aquatic habitat for fish, absence of coastal salt marsh for many of the mammal and bird species known from the Baylands, and suitable nesting habitat for special-status bird species as well as more common bird species protected under the federal Migratory Bird Treaty Act.

Suitable habitat for special-status plant species known from the surrounding area is absent from the APE, and none are expected to occur in the APE due to past development and ongoing disturbance observed during the field reconnaissance surveys. The entire APE has been completely disturbed by past grading, installation of wastewater treatment facilities, roadways and other improvements, and ongoing maintenance and other disturbance, which precludes the possibility of presence of any special-status plant species in the APE.

Jurisdictional Waters

Based on a review of the National Wetland Inventory mapping and the observations made during the field reconnaissance surveys, there are no potential jurisdictional wetlands or regulated unvegetated "other waters of the U.S." in the vicinity of the APE. The Old Alameda Creek channel occurs to the northwest of the APE, but is separated by a well-maintained gravel road on the top of the adjacent levee.

IMPACT ANALYSIS

Control Measures Incorporated by USD

None.

Significance Criteria

RESOURCE CATEGORY / SIGNIFICANCE CRITERIA	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Information Sources
D. <u>BIOLOGICAL RESOURCES</u>					
Would the Project:					
1) 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 & Game or U.S. Fish and Wildlife Services?	☐	☒	☐	☐	20
2) 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?	☐	☐	☐	☒	20
3) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒	20
4) 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?	☐	☐	☒	☐	20
5) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒	20
6) Conflict with provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒	20

No Impacts: Criteria D2, D3, D5, D6

The APE does not contain any riparian habitat or other sensitive natural community types, and no effects are anticipated (Criterion D2). Nor does the APE contain any federally protected

wetlands, and no effects are anticipated (Criterion D3). Thus, pursuant to CEQA-Plus requirements, the Project is consistent with Executive Order 11990–Protection of Wetlands. Because California does not have a Coastal Barriers Resources System, no impacts relative to the Coastal Barriers Resources Act will occur. In addition, no impacts would occur relative to the Union City General Plan or the City's Tree Conservation Ordinance (Criterion D5), and the Project would not conflict with any adopted habitat conservation plan as such a plan has not been prepared addressing the APE (Criterion D6).

Less than Significant Impact: Criterion D4

The proposed Project would not have any significant adverse impacts on wildlife movement opportunities or adversely impact native wildlife nursery sites. Wildlife in the vicinity of the APE are already acclimated to human activity at the WWTP, and construction-related disturbance would not cause any significant impacts on possible bird nesting in the surrounding area. Species that utilize the surrounding area for foraging and nesting would continue to use these areas, even during construction, given the long distance, dense screening, and acclimation to human disturbance at the WWTP.

Pursuant to CEQA-Plus requirements, no essential fish habitat would be affected and the Project is consistent with the Magnuson-Stevens Fishery Conservation and Management Act.

Less than Significant with Mitigation Incorporated: Criterion D1

Due to the extent of past development and absence of suitable habitat, no special-status species are believed to occur in the APE, and no effects are anticipated. Thus, pursuant to CEQA-Plus requirements, no federally-listed species would be affected and there would be no impact relative to the federal endangered species act (ESA) as a result of Project implementation.

No evidence of any nesting was observed in the trees in the vicinity of the APE, including burrowing owl and other raptors. The dense row of trees adjacent to the western edge of the APE provide dense screening between the WWTP and sensitive marsh habitat to the west along the Old Alameda Creek Channel. Any birds nesting in the marshlands are already acclimated to on-going activity at the WWTP, and construction-related disturbance would not result in disturbance to nesting and foraging birds given the long distance, dense screening, and acclimation.

Although the limited habitat values and extent of on-going disturbance generally precludes the potential for nesting birds in the APE, there remains a remote possibility that new bird nests could be established in the few scattered trees and other structures in the APE. If construction is initiated during the bird nesting season (February 1 – August 31) construction-related disturbance could result in abandonment of the nests if any are present in the immediate vicinity. If construction-related noise and disturbance resulted in abandonment of a nest in active use and loss of any eggs or young in the nest, this would be a significant adverse impact

and violation of the federal Migratory Bird Treaty Act and State Fish and Game Code sections. The mitigation measure below would serve to avoid this potential for violation of federal and state regulations by conducting a preconstruction survey and implementing appropriate construction restrictions if any active nests are encountered until any young birds have successfully fledged.

Mitigation Measure BIO-1. Adequate measures shall be taken to avoid inadvertent take of bird nests protected under the federal Migratory Bird Treaty Act and State Fish and Game Code when in active use. This shall be accomplished by taking the following steps.

- If initial construction is proposed during the nesting season (February 1 to August 31), a focused survey for nesting raptors and other migratory birds shall be conducted by a qualified biologist within seven days prior to the onset of construction in order to determine whether any active nests are present in the APE and surrounding area within 100 feet of proposed construction. The survey shall be reconducted any time construction has been delayed or curtailed for more than seven days during the nesting season.

- If no active nests are identified during the construction survey period, or development is initiated during the non-breeding season (September 1 to January 31), construction may proceed with no restrictions.

- If bird nests are found, an adequate setback shall be established around the nest location and construction activities restricted within this no-disturbance zone until the qualified biologist has confirmed that any young birds have fledged and are able to function outside the nest location. Required setback distances for the no-disturbance zone shall be based on input received from the CDFW, and may vary depending on species and sensitivity to disturbance. As necessary, the no-disturbance zone shall be fenced with temporary orange construction fencing if construction is to be initiated elsewhere in the APE.

- A report of findings shall be prepared by the qualified biologist and submitted to the District for review and approval prior to initiation of construction during the nesting season (February 1 to August 31). The report shall either confirm absence of any active nests or should confirm that any young are located within a designated no-disturbance zone and construction can proceed. No report of findings is required if construction is initiated during the non-nesting season (September 1 to January 31) and continues uninterrupted according to the above criteria.

Implementation of this mitigation measure would ensure that impacts on special-status species would be less-than-significant.

E. CULTURAL RESOURCES

SETTING

A Phase 1 Cultural Resource Evaluation for the proposed Project was prepared by Archeo-Tec, Consulting Archaeologists and is included in Appendix E.[21] The Phase 1 study found no evidence of identified archaeological resources within the APE. Therefore, pursuant to Section 106 of the National Historic Preservation Act, a finding of no historic properties affected as pertains to archaeological resources is appropriate. The appendix should be consulted for a full discussion of the environmental setting and impact analysis.

IMPACT ANALYSIS

Significance Criteria

RESOURCE CATEGORY / SIGNIFICANCE CRITERIA	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Beneficial Impact	Information Sources
E. <u>CULTURAL RESOURCES</u>						
Would the Project:						
1) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☒	☐	☐	☐	21
2) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐	☐	21
3) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature of paleontological or cultural value?	☐	☒	☐	☐	☐	13
4) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐	☐	21

Less than Significant with Mitigation Incorporated: Criteria E1-E4

Fill exists throughout the Alvarado WWTP and adjoining areas, and there is a high level of soil disturbance in and around the Project site. Criterion E1-E4 addresses the possibility of historic archaeological and paleontological human remains being encountered during construction activities. Although extremely unlikely, fill or underlying sediments could contain such resources or redeposited human remains. This is a potentially significant adverse impact.

Mitigation Measures

To mitigate Criterion E1-E4 impacts to less than significant levels, the following measures shall be required:

ARCH 1: Once the Project's construction plans have been finalized, an archaeologist shall be retained by USD or the Contractor to develop and implement a monitoring and reporting program.

ARCH 2: The archaeologist shall prepare an archaeological "Alert Sheet" which will be distributed to the construction crew. A brief, on-site education session with the construction crew shall be conducted. The Alert Sheet will identify the procedures to be followed in the event of accidental discovery of historic, archaeological or paleontological resources in compliance with the California Health and Safety Code and the California Public Resources Code.

ARCH 3: Soils emerging from pile driving within the engine generator building site shall be intermittently inspected by an on-site archaeologist.

ARCH 4: Archaeological monitoring shall occur during excavation of the western portion of the engine generator building site.

ARCH 5: If an archaeological deposit is found—whether during monitoring or through accidental discovery—it shall be assessed for potential significance. If the archaeologist identifies an intact and potentially significant archaeological resource, he or she shall develop a treatment plan in consultation with the USD, the State Water Resources Control Board (SWRCB), tribal representatives (in the event of a prehistoric site) and the State Historic Preservation Officer (SHPO). This plan would likely entail a program of systematic data recovery in which cultural materials are documented and removed.

ARCH 6: If human remains are encountered, the following procedures will be implemented:

a. Per the stipulations of the California Health and Safety Code Section 7050.5(b), the Alameda County Coroner's Office will be contacted immediately; this will occur whether or not a Most Likely Descendant has already been appointed.

b. The Coroner's Office has two working days in which to examine the identified remains. If the Coroner determines that the remains are Native American, then—if a Most Likely Descendant has not yet been appointed—the Office will notify the Native American Heritage Commission (NAHC) within 24 hours.

c. Following receipt of the Coroner's Office notice, the NAHC will contact a Most Likely Descendant. The Most Likely Descendant then has 48 hours in which they

can make recommendations to the project sponsor and consulting archaeologist regarding the treatment and/or re-interment of the human remains and any associated grave goods.

d. Appropriate treatment and disposition of Native American human remains and associated grave goods will be collaboratively determined in consultation between the appointed Most Likely Descendant, the consulting archaeologist, and the landowner or authorized representative. The treatment of human remains may potentially include the preservation, excavation, analysis and/or reburial of those remains and any associated artifacts.

e. If the remains are determined not to be Native American, the Coroner, archaeological research team, and USD will collaboratively develop a procedure for the appropriate study, documentation, and ultimate disposition of the historic human remains.

F. TRIBAL CULTURAL RESOURCES

IMPACT ANALYSIS

Significance Criteria

RESOURCE CATEGORY / SIGNIFICANCE CRITERIA	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Beneficial Impact	Information Sources
F. <u>TRIBAL CULTURAL RESOURCES</u> 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:						
1) 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	☐	☐	☐	☒	☐	13, 21
2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resource 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.	☐	☐	☐	☒	☐	13, 21

No Impacts: Criteria F1, F2.

Based on the Phase I Cultural Resources Evaluation discussed in Section E, no tribal cultural resources are known to exist within the Project area. Construction activities will occur in a disturbed area. Mitigation measures (ARCH 1-ARCH 6) provide protocol for accidental discovery of historic, archaeological, and paleontological resources and human remains during construction. No impact to a tribal cultural resource will occur.

G. GEOLOGY AND SOILS

SETTING

A draft Geotechnical Design Report has been prepared for the Project by Cal Engineering and Geology.[6] Relevant information is summarized below.

Site Geology and Seismicity

The Project site is underlain by historical levee fills in an area which was improved in the 1950s. The levee fills were most likely compacted during original construction but the details are unknown. Below the manmade levee fills, the site is likely underlain by both Holocene alluvial fan levee deposits and Holocene San Francisco Young Bay Mud.

The Geotechnical Investigation included three geotechnical borings drilled to a depth of 50 feet below ground surface (bgs). Beneath the asphalt pavement at the ground surface, artificial fill consisting of silty sands and clays were encountered to depths ranging from 6.5 to 7 feet bgs. Artificial fill was underlain by loose to medium dense and soft estuarine deposits referred to as Bay Mud which extended to between 10 and 11 feet bgs. Below the Bay Mud, alluvial soils comprised of medium dense to dense sand and very stiff to hard clay were encountered to 50 feet bgs.

The Project site is located in the seismically active San Francisco Bay Area. The site is not located within an Alquist-Priolo Earthquake Fault Zone and no active faults are known to pass through the Project sites. The closest active fault to the site is the Hayward-Rodgers Creek Fault located about 4 miles to the northeast.

The primary geologic hazards relevant to the proposed Project include strong seismic ground shaking, liquefaction and settlement. Liquefaction refers to the sudden, temporary loss of soil strength during strong ground shaking. The Project site is located in a liquefaction seismic hazard zone. For the proposed standby power building location, the Geotechnical Design Report found that the high liquefaction potential is due to loose to medium dense granular soils below the site, primarily between about 5 to 15 feet bgs. The Geotechnical Design Report concluded, however, that construction of the Project is feasible from a geotechnical standpoint provided appropriate controls are utilized.

Groundwater

Upper unconfined groundwater is present at the Project site. Groundwater was encountered in the test borings at depths ranging from 7 to 10 feet below grade. The Geotechnical Design noted that groundwater levels may fluctuate depending on rainfall, groundwater pumping, and tidal influences due to the proximity of the bay margins. A design groundwater level of Elevation + 4 feet (approximately 4 to 6 feet below existing grade) is recommended. The stiff silty clays in turn are underlain by the Newark Aquifer at a depth of 40 to 50 feet, which is a

protected aquifer under Alameda County Water District (ACWD) policies. Thus, groundwater may need to be managed during construction.

IMPACT ANALYSIS

Control Measures Incorporated by USD

G1. Incorporate the recommendations of the Project Geotechnical Design Report for design, construction, and long-term performance into the Contract Documents for the Project.

G2. Have a geotechnical engineer review the final Project plans and specifications prior to construction to verify that geotechnical aspects of the Project are consistent with the intent of the recommendations included in the Project Geotechnical Design Report.

G3. Have a geotechnical engineer review geotechnical-related Contractor submittals during construction (e.g., shoring, dewatering, ground improvement, backfill materials, etc.).

G4. Have a geotechnical engineer perform periodic site inspections during the construction to observe and document subsurface conditions encountered by the Contractor with respect to the subsurface conditions described in the Project Geotechnical Design Report.

G5. The Contractor will submit to USD, if applicable, a copy of their annual trench and/or excavation permit issued by the California Occupational Safety and Health Administration (Cal/OSHA).

G6. In accordance with the provisions in Section 6705 of the Labor Code, the Contractor shall submit in advance of excavation of any trench or trenches five feet or more in depth, a detailed plan in conformance with the Project Geotechnical Design Report showing the design of shoring, bracing, sloping and dewatering, or other provisions to be made for worker protection from the hazard of caving ground during the excavation of such trench or trenches. Any excavation dewatering of more than one foot below groundwater level must be contained within relatively impermeable shoring to avoid settlement outside the excavation. If such plans vary from the shoring system standards set forth in the Construction Safety Orders of the Division of Industrial Safety in Title 8, Subchapter 4, Article 6, California Code of Regulations (CCR), the plans shall be prepared and signed by a California registered civil or structural engineer.

G7. Contractor shall prepare a Water Pollution Control Plan (WPCP) for USD approval. The WPCP shall include measures to be implemented for control of erosion and to prevent the discharge of contaminated stormwater runoff and other sources of pollutants from the job site. The WPCP shall include appropriate requirements of the BAAQMD as discussed in Section C and recommendations of the Geotechnical Design Report.

G8. Imported soil shall comply with Project specifications which define the minimum geotechnical properties and analytical quality characteristics that must be met for use of fill material from off-site borrow sources. All imported fills shall not contain environmental containments or debris and shall be non-corrosive and comply with the recommendations in the Department of Toxic Substances Control's (DTSC's) Information Advisory Imported Fill Material (October 2001).

Significance Criteria

RESOURCE CATEGORY / SIGNIFICANCE CRITERIA	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Beneficial Impact	Information Sources
G. <u>GEOLOGY AND SOILS</u>						
Would the Project:						
1) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:						
a) 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.	☐	☐	☐	☒	☐	6, 13
b) Strong seismic ground shaking?	☐	☐	☒	☐	☐	6, 13
c) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐	☐	6, 13
d) Landslides?	☐	☐	☐	☒	☐	13
2) Result in substantial soil erosion, siltation, changes in topography and the loss of topsoil or unstable soil conditions from excavation, grading or fill?	☐	☐	☒	☐	☐	6, 13
3) 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?	☐	☐	☒	☐	☐	6, 13

RESOURCE CATEGORY / SIGNIFICANCE CRITERIA	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Beneficial Impact	Information Sources
4) Be located on expansive soil, as defined in Table 16-I of the Uniform Building Code (2001), creating substantial risks to life or property?	☐	☐	☐	☒	☐	13
5) 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?	☐	☐	☐	☒	☐	13
6) Result in substantial soil degradation or contamination?	☐	☐	☒	☐	☐	6, 13

No Impacts: Criteria G1(a), G1(d), G4, G5

The Project site is not within an Alquist-Priolo Earthquake Fault Special Studies Zone (Criterion G1(a)) with no potential for landslides (Criterion G1(d)). Expansive soils are not an issue with the Project (Criterion G4) and Criterion G5 relating to soils and alternative wastewater disposal systems is not relevant to the Project.

Less Than Significant Impacts: Criteria G1(b), G1(c), G2, G3, G6

Physical Hazards: Criteria G1(b), G1(c), and G3. These criteria relate to physical hazards the Project may cause or be exposed to during construction and operation. Previous discussion in this section indicated that the Project area has the potential for strong seismic ground shaking and high liquefaction potential. Additionally, Project construction will involve excavation for the new standby generator building extending to 6 feet bgs. Strong seismic ground shaking can result in damage to the Project structures. Liquefaction can result in ground movement, settlement, and other related effects.

Control measures, however, have been included in the Project to address these issues. Control Measures G1 through G4 provide for the ongoing involvement of a geotechnical engineer with incorporation of their recommendations into the Project plans and specifications. Controls necessary to address the primary geotechnical considerations for the Project include compliance with provisions of Chapter 16 of the California Building Code; use of prescribed measures for site preparation, subgrade preparation, shoring of excavations, use of engineered fill materials, fill placement and compaction, and pipe bedding and trench backfill; use of a structural mat foundation; wet weather construction; and surface drainage. Control Measures G5 and G6 address the Project's excavation activities; compliance with the Labor Code and the need to have an acceptable plan for shoring, bracing, sloping or other provisions necessary to address the hazards of caving of any trench five feet or more in depth and other safeguards necessary to minimize the risk of caving. The Geotechnical Design Report concluded that

construction of the proposed Project is feasible from a geotechnical standpoint provided necessary controls are implemented. Thus, potential impacts related to ground shaking, ground failure, and associated physical hazards are less than significant.

Soil Erosion: Criterion G2. Criterion G2 addresses the potential for soil erosion. Project construction will involve soil excavation to install Project components and associated piping. Although the construction activities are limited in extent and duration, these activities could still cause sediment and other pollutants to leave the site and enter Old Alameda Creek and surrounding areas and the WWTP drainage system. Control Measure G7 provides for preparation of a WPCP by the Contractor which will contain the necessary temporary construction site BMPs for control of erosion and other sources of pollutants. As a result, potential impacts associated with discharge of contaminated stormwater runoff are less than significant.

Soil Degradation: Criterion G6. Criterion G6 addresses whether the Project will result in substantial soil degradation or contamination. Soil will need to be imported to the job site to provide suitable fill and, if not regulated, could be contaminated, resulting in on-site impacts. To provide for the protection of surface and groundwater quality and public health, Control Measure G8 will require the use of fill material from off-site borrow sources to comply with analytical quality characteristics contained in DTSC's Information Advisory Imported Fill Material (October 2001), as well as minimum geotechnical properties recommended by the Geotechnical Design Report. The impact is less than significant.

Mitigation Measures

None required.

H. GREENHOUSE GAS EMISSIONS

IMPACT ANALYSIS

Control Measures Incorporated by USD

H1. Implement BAAQMD basic construction control measures (Control Measures C1-C7).

H2. Require the Contractor to recycle at least 50% of construction waste or demolition materials, to the extent practicable.

Significance Criteria

RESOURCE CATEGORY / SIGNIFICANCE CRITERIA	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Beneficial Impact	Information Sources
H. GREENHOUSE GAS EMISSIONS						
Would the Project:						
1) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐	☐	18, 19, 23
2) Conflict with any applicable plan, policy or regulation of an agency adopted for the purposes of reducing the emissions of greenhouse gases?	☐	☐	☒	☐	☐	13, 18, 19, 24

Less than Significant Impacts: Criteria H1, H2

Sources of greenhouse gas (GHG) emissions include exhaust with such chemicals as carbon dioxide, methane, and nitrous oxide. The Project has an approximate 12-month period of actual construction activity. Standby generators would be an occasional source of operational GHG emissions.

Construction Emissions. Project construction activities would generate about 376 metric tons (MT) or 414 tons of carbon dioxide equivalent (CO_2e) emissions (Appendix B). This is equivalent to 80 passenger vehicles being driven for one year.[22] These are short-term emissions and would cease once construction is complete. The BAAQMD has no emissions threshold for significance of constructed related GHG emissions, but recommends they be quantified and disclosed and that BMPs be incorporated to reduce GHG emissions during construction, as feasible and applicable.[17]

The construction of the BMPs identified by the BAAQMD may include, but are not limited to the following:

- Use alternative-fueled (e.g., biodiesel, electric) construction vehicles/equipment in at least 15% of the fleet;

- Use at least 10% local building materials; and

- Recycle at least 50% of construction waste or demolition materials.

The first two measures are not feasible for the Project but recycling is applicable.[23] For example, the Contractor will demolish the six existing generators and most likely will sell the parts or the entire generator units. In addition to implementing Control Measure H1, BAAQMD basic construction control measures, USD will require Control Measure H2 to maximizing recycling. As such, construction-related emissions will have a less than significant impact on the environment (Criterion H1).

Operation Emissions. Operational GHG emissions for the standby engine generators have been calculated to be 282 MT/yr or 310 tons/yr based on 50 hours of operation per new generator per year (Appendix C). For stationary source projects, which include land uses that would accommodate processes and equipment that emit GHG emissions and would require an Air District to operate, BAAQMD has a threshold of 10,000 MT/yr of CO_2e. Thus, operational emissions would be less than this threshold and less than significant.

Applicable Plans. Applicable plans include the California Global Warming Solutions Act of 2006 (AB 32), the subsequent 2008 Climate Change Scoping Plan, the First Update to the AB 32 Scoping Plan (2014 First Update), and the ongoing second update to the AB 32 Scoping Plan. Locally, Union City adopted its Climate Action Plan in 2010.[24] These statewide and local plans outline policies and actions to meet specified emission targets. As discussed above, Project GHG emissions are less than significant; thus, the Project will not conflict with these plans (Criterion H2).

I. HAZARDS AND HAZARDOUS MATERIALS

SETTING

This resource category addresses health and safety issues related to construction of the Project. As the Project site is isolated and removed from areas frequented by the public, health and safety issues apply to construction workers who would be exposed to hazardous materials and physical conditions associated with the presence of construction equipment and excavations. There are a variety of state and federal regulations that apply to construction projects for protection of health and safety. USD also has standard specifications to address these issues based on other successfully completed projects.

As discussed in Chapter 1, pre-demolition surveys completed by USD have shown the presence of lead-based paint in several of the structures to be demolished.[4, 5] Though asbestos and polychlorinated biphenyls (PCBs) were not found, the potential exists that they could still be encountered in areas not sampled during the investigation.

Several regulatory agency databases were consulted regarding the presence of hazardous materials release sites within the Project area, including the State Water Resources Control Board (SWRCB) Geotracker website and the State Department of Toxic Substances Control (DTSC) Cortese List.[25, 26] No sites on the Cortese List are in the Project area. Several permitted underground storage tanks exist just to the east of the Project site.

The Geotracker database identifies the Alvarado WWTP as a program cleanup site owing to the historical occurrence of petroleum hydrocarbon contamination in three areas of the plant site. Remediation activities have been completed by USD and the site continues to be regulated by the ACWD with requirements for an annual groundwater monitoring program and reports.[27]

Cal Engineering and Geology also completed an environmental screening of soils at the Standby Power Building site which included chemical analysis of soils at several locations and depths for various petroleum hydrocarbons, volatile organic compounds (VOC) and metals.[6a] Some elevated VOC and arsenic levels were found, though arsenic is a trace metal that is present in low levels in all environmental media (soil and rock, water, and air).

IMPACT ANALYSIS

Control Measures Incorporated by USD

I1. Store and handle all hazardous materials in strict accordance with the Material Safety Data Sheets for the products. The storage and handling of potential pollution causing and hazardous materials, including but not necessarily limited to gasoline, oil, and paint, will be in accordance with all local, state, and federal requirements.

I2. When sandblasting, spray painting, spraying insulation or other activities inconveniencing or dangerous to property or the health of employees or the public are in progress, the area of activity shall be enclosed adequately to contain the dust, overspray, or other hazards. In the event there are no permanent enclosures at the area, or such enclosures are incomplete or inadequate, the Contractor shall provide suitable temporary enclosures. When sawing, cutting, or grinding concrete or other materials that produce silica dust, water shall be used to prevent the dust from becoming airborne. Proper respiratory protective equipment shall be worn during activities covered in this control measure.

I3. Comply with the requirements of the California Aboveground Petroleum Storage Act (APSA), and state and local requirements for the construction, installation, operation and maintenance of aboveground fuel storage for the prevention of fires and other hazards.

I4. Employ safety provisions conforming to the U.S. Department of Labor (OSHA), Cal/OSHA, and all other applicable federal, state, county and local laws, ordinances, and codes**.** The completed work shall include all necessary permanent safety devices, such as machinery guards and similar ordinary safety items, required by the state and federal industrial authorities and applicable local and national codes. Develop and submit to USD for approval a Health and Safety Plan, which has been reviewed by a certified industrial hygienist, that defines proposed site safety measures and which notifies workers of the presence of detected concentrations of chemicals at the site.

I5. Appoint an employee as safety supervisor who is qualified and authorized to supervise and enforce compliance with the Safety Program. The Safety Program will include an operation plan with emergency contacts.

I6. The Contractor shall construct appropriate safety barriers such as temporary fencing, berms, or similar facilities where required or directed by USD. To minimize disturbance of existing roads and facilities, safety barriers shall allow for normal maintenance and operation of existing facilities and roads as determined by USD or its appointed Representative. The Contractor shall conduct his work so as to ensure the least possible obstruction to traffic and inconvenience to the general public and the residents in the vicinity of the work and to ensure the protection of persons and property.

I7. Establish, implement, and maintain a written injury prevention program as required by Labor Code Section 6401.7.

I8. In case of an emergency, make all necessary repairs and promptly execute such work when required by the Construction Manager.

I9. If contaminated materials are encountered during excavation, then all work shall comply with the following codes and will be reported to the RWQCB and ACWD immediately:

a. Code of Federal Regulations (CFR) – Title 40 – Protection of the Environment, Part 761 (40 CFR 761).

b. CCR, Title 22, Social Security, Division 4, Environmental Health, Chapter 30 – Minimum Standards for Management of Hazardous and Extremely Hazardous Wastes.

I10. Pursuant to the Contract Documents, relative to contaminated materials, the Contractor shall submit the following to the USD for review:

a. The Contractor shall review the latest WWTP groundwater monitoring report and the environmental soil screening test results and prepare and submit to the USD or its appointed Representative, for review, a detailed Job Plan describing the proposed

methods and procedures for excavating, segregating, testing, and disposing of contaminated soil or groundwater. The Job Plan shall be submitted to the District or its appointed Representative no less than fourteen (14) days prior to the start of any excavation work at locations where contaminated soils and groundwater is anticipated.

b. The Job Plan shall include step-by-step procedures for the actions to be taken in identifying, handling, removing, and disposing of any contaminated soil or groundwater encountered during excavation.

c. At least 14 days before the start of any excavation at locations where contaminated soils and groundwater are anticipated, the Contractor shall prepare and submit to the USD or its appointed Representative, for review, a supplemental Health and Safety Plan. The supplemental Health and Safety Plan shall be prepared by an industrial hygienist certified by the American Board of Industrial Hygiene and shall include, but not limited to, training of the Contractor's personnel, protective equipment, air monitoring, sampling, and emergency procedures.

d. No excavation will be allowed to commence until the Health and Safety Plan has been returned by the District to the Contractor with the notation: "Resubmittal not required."

e. The Contractor shall provide copies of hazardous waste transporter licenses, permits, or registrations for all states in which the shipment shall travel.

f. The Contractor shall obtain all permits and licenses, pay all charges and fees, and give all notices necessary and incident to the due and lawful prosecution of the work, including certification of transport vehicles carrying hazardous material.

I11. Pursuant to the Contract Documents relative to contaminated materials, the Contractor shall implement the following monitoring requirements:

a. Contractor shall furnish a properly calibrated, fully functional organic vapor analyzer (OVA) for use at the site of every excavation or open trench to continually sample and monitor the ambient atmosphere.

b. The preliminary mode of examination for petroliferous soil and/or groundwater shall be through visual and olfactory means. Upon the first observation of soil or water that may contain petroliferous products, the Contractor shall stop excavation work and immediately notify the USD or its appointed Representative, the Regional Water Quality Control Board (RWQCB) and the ACWD. No excavation of petroliferous soil, nor pumping of petroliferous water, shall proceed without the approval of USD or its appointed Representative, the RWQCB and the ACWD.

c. Following sensory observation of petroliferous products, the OVA equipment shall be brought to the excavation site and the atmosphere shall be tested. The Contractor's Job Plan and Health and Safety Plan shall be immediately placed into effect.

d. Potentially contaminated soil or water shall be segregated and tested by the Contractor, at a certified laboratory approved by USD or its appointed Representative, to determine the consistency and quantity of petroliferous products. The soil or water shall then be disposed of in accordance with applicable local, state and federal law, following the procedures described in the Contractor's Job Plan and Health and Safety Plan.

I12. Pursuant to the Contract Documents, contaminated materials will be handled and disposed of in the following manner:

a. The Contractor shall avoid or minimize excavation in contaminated areas whenever possible.

b. Excavated trench material that, in the opinion of USD or its appointed Representative, exhibits evidence of petroleum contamination shall be removed from the site and temporarily stockpiled by the Contractor. The location of the temporary stockpile area must be reviewed by USD. The contaminated trench materials shall be placed on a 10 mil polyethylene sheeting to prevent contamination of uncontaminated soils and shall be separated from all uncontaminated trench materials. The temporary stockpiles of contaminated trench materials shall be covered securely with 10 mil polyethylene sheeting to limit emissions and prevent rainfall from entering the stockpile. Runoff or drainage from the temporary stockpile shall be prevented from leaving the area and all materials shall be surrounded with 6-foot high temporary chainlink fence.

c. The temporary stockpiles of contaminated trench materials shall be sampled and analyzed by a certified testing laboratory, approved by USD or its appointed Representative. Results of the laboratory analysis shall be provided by USD or its appointed Representative within 7 calendar days from the date that the material is stockpiled.

d. Disposal of the contaminated trench materials will depend on the results of the testing program. The Contractor shall dispose of the contaminated material with the approval of USD or its appointed Representative, at either a licensed thermal remediation plant or by disposal at a Class II landfill, following required procedures.

e. All handling, storing, transporting, treatment, and disposal of contaminated soil and groundwater shall conform with the federal and state environmental regulations, including those of the RWQCB, DTSC, Integrated Waste Management Board, CARB,

and the BAAQMD. Transport of contaminated material and groundwater shall be performed by appropriately certified and/or licensed personnel.

f. Upon completion of excavation within the contaminated area and the hauling and disposal of contaminated materials, the Contractor shall clean up the site, including proper removal and disposal of all plastic sheetings, containers, and other materials used.

g. Any groundwater from trenching activities within the contaminated soil area, as shown on the plan shall be stored in temporary Baker-type storage tanks. The Contractor shall sample and analyze groundwater, then dispose of the stored groundwater as directed by USD or its appointed Representative. Depending on the quality of the groundwater, disposal may be to the sewer system or a suitable off-site disposal facility.

I13. Submit for USD review, in accordance with the provisions of Section 6705 of the Labor Code, in advance of excavation of any trench or trenches 5 feet or more in depth, a detailed plan showing the design of shoring, bracing, sloping or other provisions to be made for worker protection from the hazard of ground caving. See Control Measure G6.

I14. Manhole entry and/or entry to any excavation greater than 5 feet deep shall be in full compliance with the confined space entry requirements of OSHA, Cal/OSHA and USD. The District shall have the authority to require the removal from the project of the foreman and/or superintendent in responsible charge of the work where safety violations occur.

I15. During non-working hours, all trenches shall either be covered with steel plates or protected by fencing to limit access.

I16. If complaints are received relative to unsafe conditions, identify the source, evaluate and implement appropriate corrective measures, and notify the complainant(s) of the results.

I17. Comply with Specifications Section 01354, Hazardous Materials Procedures. This section provides for preparation and compliance with a hazardous material work plan for lead-based paint, asbestos, and PCBs. The work plan, prepared by the Contractor, will be in compliance with a series of state and federal regulations governing the use of qualified personnel, and the use of required procedures for the removal, containment, and disposal of these materials for the protection of worker health and safety and the environment.

I18. Implement Control Measure G8 which regulates the geotechnical properties and quality characteristics of imported fill.

Significance Criteria

RESOURCE CATEGORY / SIGNIFICANCE CRITERIA	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Beneficial Impact	Information Sources
I. <u>HAZARDS AND HAZARDOUS MATERIALS</u>						
Would the Project:						
1) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐	☐	13
2) 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 or risk explosion?	☐	☐	☒	☐	☐	13
3) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒	☐	13
4) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐	☐	6a, 25, 26
5) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport, would the Project result in a safety hazard for people residing or working in the Project area?	☐	☐	☐	☒	☐	13
6) For a project within the vicinity of a private airstrip, would the Project result in a safety hazard for people residing or working in the Project area?	☐	☐	☐	☒	☐	13
7) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒	☐	13

RESOURCE CATEGORY / SIGNIFICANCE CRITERIA	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Beneficial Impact	Information Sources
8) Expose people or structures to significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒	☐	13
9) Expose people to existing or potential hazards and health hazards other than those set forth above?	☐	☐	☒	☐	☐	13

No Impacts: Criteria I3, I5-I8

The Project is not located near a school, public airport or private airstrip (Criteria I3, I5 and I6); would not interfere with an adopted emergency response plan (Criterion I7); and would not expose people or structures to significant risk of loss, injury, or death involving wildland fires (Criterion I8).

Less Than Significant Impacts: Criteria I1, I4, I9

Use of Hazardous Materials and Associated Hazards: Criteria I2. The use of hazardous materials would be limited during demolition and construction activities and would include such traditional materials as gasoline, diesel, oil, paint, resin, and epoxy concrete. Control Measure I1 requires the storage and handling of these materials to be in strict accordance with the Material Safety Data Sheets for the products and adherence to all local, state, and federal requirements. Control Measure I2 addresses sandblasting, spray painting, concrete cuttings and other similar activities with risk to employees or the public.

The aboveground storage of fuel is a Project component which has potential to create a significant hazard to workers, public, and the environment. However, Control Measure I3 requires compliance with Aboveground Petroleum Storage Act (APSA) and state and local requirements for construction, installation, operation, and maintenance to address this issue. California has enacted the APSA to regulate aboveground storage tanks (ASTs) used for storing crude oil and petroleum products in liquid form. This law authorizes specific management requirements for tank owners and operators. Additionally, most ASTs must also meet state and local fire codes which address construction, installation, operation, and maintenance requirements that are intended to prevent fires and other hazards that can occur due to mismanaged or substandard ASTs.

Control Measures (I4 through I8) have also been included in the Project to address routine health and safety concerns. These include use of safety provisions conforming to local, state,

and federal standards (Control Measure I4), use of a Safety Program and enforcement by a safety supervisor (Control Measure I5), use of safety barriers (Control Measure I6), a written injury presentation program (Control Measure I7), and prompt emergency repairs (Control Measure I8). The impact is less than significant.

Hazardous Materials Site: Criterion I4. As discussed earlier, the Alvarado WWTP is a program cleanup site due to the historical occurrence of petroleum hydrocarbon contamination at several locations. An annual groundwater monitoring is required by the ACWD.[27]

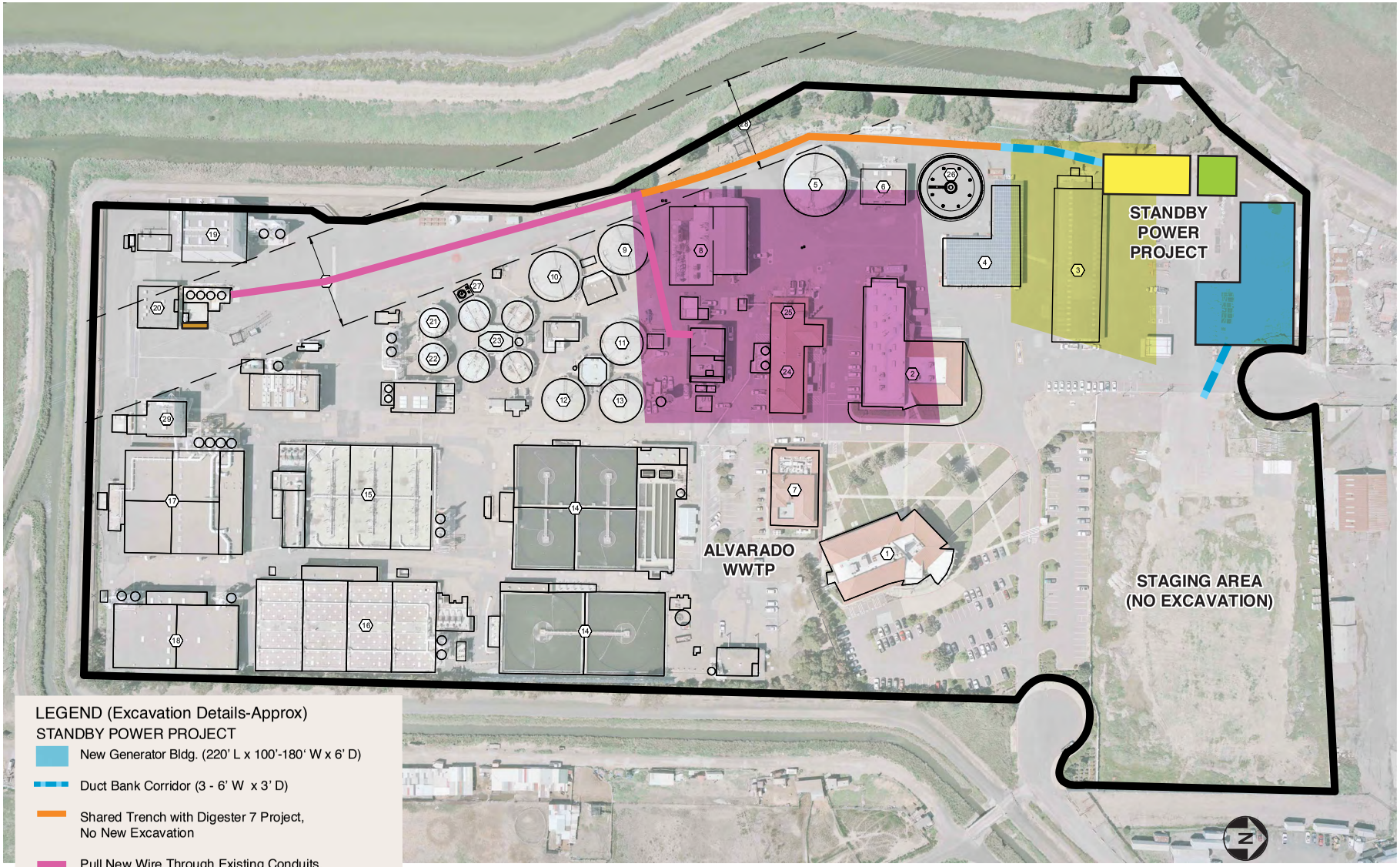
Based on the results of the groundwater monitoring program, areas of petroleum hydrocarbon contamination do exist, as shown on Figure 5. The area just south of the new Standby Power Building has potential heavy end hydrocarbons (diesel and motor oil) in soil and groundwater, and one well in this area has floating product. Except for a short segment of the duct bank corridor and the future battery storage area, Project facilities are outside this contamination zone. The environmental screening analysis by Cal Engineering and Geology found elevated VOC and arsenic levels within the Standby Power Building footprint. Thus, trenching activities in these areas may encounter known areas of hydrocarbon-contaminated soil and/or groundwater and possibly elevated arsenic levels. Without suitable controls, the potential for health and safety hazards would exist. However, Control Measures I9-I12 will be included in the Contract Documents to address any contaminated soil and groundwater that is encountered. The impact relative to Criterion I4 is less than significant.

Safety and Health Hazards: Criterion I9. Criterion I9 relates to other hazards not addressed by Criteria I1 through I8 and is primarily related to the health and safety of workers and the public. The Project involves demolition of selected structures and electrical equipment which could expose workers to hazardous materials such as lead-based paint, asbestos, and PCBs. The Project also involves the use of heavy equipment and excavations of up to 6 feet in depth. Without suitable controls, the potential for health and safety hazards would exist.

A variety of control measures, however, have been included in the Project to address safety and health hazards. Measures include compliance with the requirements of OSHA and with all applicable local, state, and federal requirements (Control Measure I13 and I14); development and implementation of a safety program (Control Measure I4); controls over open trenches and entry pits to provide for site security and public safety (Control Measure I15); procedures for receiving and responding to unsafe working conditions should any develop (Control Measures I16). Control Measure I17 requires the Contractor to take all necessary precautions for removal, containment, and disposal of lead-based paint, asbestos, and PCBs. In addition, Control Measure I18 will be included in the Contract Documents to address and to regulate the quality of imported fill. Thus, potential safety and health impacts are less than significant.

Mitigation Measures

None required.



Source: Brown and Caldwell, reference 15

Figure 5. Areas of Contamination at the WWTP

J. HYDROLOGY AND WATER QUALITY

SETTING

Figure 4 shows the land use characteristics surrounding the Alvarado WWTP and the Project location. Salt ponds within Eden Landing Ecological Reserve and the Old Alameda Creek Channel are the most prominent hydrologic features in the location. A series of flood control channels also exist in the area to convey drainage from upland areas. The WWTP site is within Zone AE of the 100-year flood plain where the base flood elevation is 10 feet above mean sea level.[27] Shallow groundwater at the site is of poorer quality and has been affected by petroleum-based contaminants from prior use of underground storage tanks, as discussed in the previous section. Although groundwater is not currently used as a water supply at the Project site, it is located in a groundwater basin that has beneficial uses as identified in the Basin Plan.

Pursuant to the CEQA-Plus requirements, the SWRCB must assess the proposed Project relative to the federal Wild and Scenic Rivers Act of 1968. There are no federally-designated wild and scenic rivers within Union City. The closest such rivers are the Merced River and Lower American River.[30]

Projects seeking funding from the SWRCB CWSRF Loan Program must also comply with the Safe Water Drinking Act and document whether or not a project has the potential to contaminate a sole source aquifer. There are four such aquifers in California with the closest being in Scotts Valley.[31] The Project is in compliance with the Safe Water Drinking Act.

IMPACT ANALYSIS

Control Measures Incorporated by USD.

J1. Develop and submit for USD review and approval, if necessary, plans of the proposed dewatering system. The dewatering system plans shall be prepared to provide a sump system at a minimum in accordance with the Project Geotechnical Design Report and shall be in sufficient detail to indicate power source, sizes of pumps, piping, appurtenances, placement of wells if needed, and the ultimate disposal point for water; and to permit USD to review the overall completeness and effectiveness of the proposed system. The submittal shall also show means of evaluating drawdown in real-time (e.g., piezometers). The control of groundwater shall be such that softening of the bottom of excavations or formation of "quick" conditions or "boils" do not occur. Dewatering systems shall be designed and operated to prevent removal of the natural soils. Sand, silt, and fine-sized soil particles shall be settled out of the water using a Baker tank or other approved method before disposal to the WWTP.

J2. The Contractor will be required to document extracted groundwater quantities using a flowmeter and report them to the ACWD.

J3. Implement Control Measure G7 for temporary control of erosion and siltation during demolition and construction, and restore affected areas following completion of construction to pre-Project conditions. Route any surface drainage to the WWTP drainage system.

J4. Implement Control Measure G6 for a shoring and bracing plan in compliance with Section 6705 of the Labor Code.

Significance Criteria

RESOURCE CATEGORY / SIGNIFICANCE CRITERIA	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Beneficial Impact	Information Sources
J. <u>HYDROLOGY AND WATER QUALITY</u>						
Would the Project:						
1) Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☒	☐	13
2) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of preexisting nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐	☐	3, 6, 13
3) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on or off site?	☐	☐	☐	☒	☐	13
4) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site?	☐	☐	☐	☒	☐	13
5) 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?	☐	☐	☒	☐	☐	3, 13

RESOURCE CATEGORY / SIGNIFICANCE CRITERIA	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Beneficial Impact	Information Sources
6) Otherwise substantially degrade water quality?	☐	☐	☒	☐	☐	3, 13
7) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒	☐	13
8) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☒	☐	☐	13, 29, 32
9) Expose people or structures to a significant risk of loss, injury or death involving flooding as a result of the failure of a levee or dam, or inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒	☐	13

No Impacts: J1, J3, J4, J7, J9

The proposed Project will not violate any water quality standards or waste discharge requirements (Criterion J1), would not substantially alter the existing drainage pattern of the site in a manner that would result in substantial erosion or siltation or the rate or amount of surface runoff (Criteria J3 and J4), does not involve construction of housing (Criterion J7), and does not expose people or structures to risk associated with levee dam failure, or inundation by seiche, tsunami, or mudflow (Criterion J9).

Less Than Significant Impacts: Criteria J2, J5, J6

Groundwater Depletion: Criterion J2: Based on the results of the Geotechnical Design Report, dewatering may be required due to high groundwater conditions and fluctuating groundwater levels. Thus, The Contractor would be prepared to design and implement a groundwater dewatering system (Control Measure I1). Although local shallow groundwater is of poor quality and not currently used as a water supply at the Project site, it is located in a groundwater basin that has beneficial uses as identified in the San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan). Use of the dewatering system would be temporary and only affect a small localized area, and would not substantially deplete groundwater supplies. Control Measure J2 requires the Contractor to document extracted groundwater quantities using a flowmeter and report them to the ACWD. The impact is less than significant.

Water Quality Degradation: Criteria J5 and J6. Soil erosion was discussed in Section G, Criterion G2. Control Measure J3 (G7) provides for preparation and implementation of a WPCP and use of temporary erosion control measures during construction. Affected areas will be restored. Any surface drainage would be managed within the WWTP drainage system and

routed to the plant headworks. Impacts related to surface water quality degradation are less than significant.

Redirection of Flood Flow: Criterion J8. As discussed above, the WWTP site is within the 100-year flood plain where the base flood elevation is 10 feet above mean sea level. USD has evaluated the effects of sea level rise on their infrastructure at the WWTP.[30] The projected sea level rise is 14 inches by 2050. New above-ground Project facilities include the Standby Power Building, diesel fuel storage tanks, future battery storage system and Substation No. 2. These facilities will be elevated on pads above the 100-year base flood elevation and expected sea level rise projections.

The surface areas of these new above-ground facilities to be placed in the flood plain is about 17,760 square feet. Given that the WWTP site encompasses 33 acres or 1,437,480 square feet, the new structures would represent 1.2% of the total WWTP area. This negligible increase in surface area of new above-ground would have a less than significant impact relative to impeding or redirecting flood flows relative to CEQA-Plus requirements, the Project is compliant with Executive Order 11988 (Floodplain Management).

K. LAND USE AND PLANNING

IMPACT ANALYSIS

Significance Criteria

RESOURCE CATEGORY / IGNIFICANCE CRITERIA	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Beneficial Impact	Information Sources
K. <u>LAND USE AND PLANNING</u>						
Would the Project:						
1) Physically divide an established community?	☐	☐	☐	☒	☐	13
2) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒	☐	13
3) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒	☐	13

No Impacts: Criteria K1-K3

The Project will be constructed within the WWTP site and will not divide an established community (Criterion K1), will not conflict with any applicable land use plan (Criterion K2), and will not conflict with any applicable conservation plan (Criterion K3). Pursuant to CEQA-Plus requirements, the Project is not within the Coastal Zone, nor subject to the requirements of the Bay Conservation and Development Commission, and thus, provisions of the Coastal Zone Management Act do not apply.

Mitigation Measures

None required.

L. MINERAL RESOURCES

IMPACT ANALYSIS

Significance Criteria

RESOURCE CATEGORY / SIGNIFICANCE CRITERIA	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Beneficial Impact	Information Sources
L. <u>MINERAL RESOURCES</u>						
Would the Project:						
1) 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?	☐	☐	☐	☒	☐	13
2) 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?	☐	☐	☐	☒	☐	13

No Impacts: Criteria L1, L2

The proposed Project includes excavation activities within a highly disturbed area and would not impact known mineral resources.

Mitigation Measures

None required.

M. NOISE

A noise and vibration technical report for the proposed Project was prepared by Charles M. Salter Associates and is included in Appendix F.[33] The reader is referred to this report for a detailed discussion of the setting and impact analysis.

SETTING

Land use surrounding the Project site is shown on Figure 4 of the Project Description and discussed in Appendix F. Scattered residences exist to the north and northeast of the Project site while more dense residential development exists to the east. A potential religious temple is located just to the northeast of the Project site. The noise environment in the vicinity of the Project site is dominated by distant traffic and equipment noise. Based on ambient noise monitoring completed by Charles M. Salter Associates, measured hourly ambient noise levels L_{90} at each location were between 40 decibels (dB) and 50 dB depending on time of day. The local planning framework for the Project consists of USD's existing Conditional Use Permit with Union City (UP-5-95),[34] the Union City General Plan[35] and the Union City Noise Ordinance.[36]

IMPACT ANALYSIS

Control Measures Incorporated by USD

M1. Comply with UP-5-95 which limits construction activity at the WWTP to the following hours:

Monday through Friday	8:00 a.m. to 8:00 p.m.
Saturday	9:00 a.m. to 8:00 p.m.
Sundays and holidays	10:00 a.m. to 6:00 p.m.

Construction activity would need to meet the requirements of Section 9.40.053 of the City's Noise Ordinance. Construction noise limitations would include at least one of the following:

A. No individual piece of equipment shall produce a noise level exceeding 83 decibels (dBA) at a distance of 25 feet. If the device is housed within a structure on the property, the measurement shall be made outside the structure at a distance as close to 25 feet from the equipment as possible.

B. The noise level at any point outside the property plane of the project shall not exceed 86 dBA.

Significance Criteria

RESOURCE CATEGORY / SIGNIFICANCE CRITERIA	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Beneficial Impact	Information Sources
M. <u>NOISE</u>						
Would the Project result in:						
1) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐	☐	33-36
2) Exposure of persons to, or generation of, excessive ground borne vibration or ground borne noise levels?	☐	☒	☐	☐	☐	33
3) A substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project?	☐	☒	☐	☐	☐	33-36
4) A substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project?	☐	☒	☐	☐	☐	33-36
5) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 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?	☐	☐	☐	☒	☐	13
6) For a project within the vicinity of a private airstrip, would the Project expose people residing or working in the Project area to excessive noise levels?	☐	☐	☐	☒	☐	13

No Impacts: Criteria M5, M6

The Project is not within the vicinity of an airport or private airstrip and no impact will occur.

Less Than Significant with Mitigation Incorporated: Criteria M1-M4

Operational and construction-related noise and vibration-related increases are discussed below:

Operational Noise: Criteria M1, M3. The Noise Analysis in Appendix F evaluated both temporary and "permanent" operational noise increases. Temporary is viewed as when the

equipment operates, or on a more instantaneous basis. The "permanent" impact assessment takes a broader view and evaluates changes to the average daily noise environment on those days when the equipment operates, assuming the generators were to run for eight hours in one day during daytime hours between 7 a.m. and 10 p.m. The major noise generating equipment includes:

- Two engine generators, minimum 3.5 MW
- Three building exhaust fans, likely on the roof
- Two building heating, ventilation, and air conditioning (HVAC) units installed at grade

Table 7 summarizes the calculated noise levels at each of the four receptors for the two operational scenarios, both on an unmitigated and mitigated basis. As can be seen, temporary unmitigated noise levels would exceed the noise limitations at all four receptors while "permanent" unmitigated noise levels would exceed the noise limit at only receptor 1. This represents a significant adverse impact. As shown in Table 7, with mitigation noise levels will be reduced to below the applicable noise limits, thus reducing impacts to less than significant levels. Mitigation measures are presented below.

Table 7. Temporary and "Permanent" Operational Noise Levels with Mitigation

Temporary Equipment Noise Levels dB				"Permanent" Average Daily Noise Levels (Ambient + Equipment Noise), DNL dB		
Reception[a]	Baseline/Unmitigated Conditions	With Mitigations	"Temporary" Noise Limit	Baseline/Unmitigated Conditions	With Mitigations	"Permanent" Noise Limit
1	68	49	49-50	64	58	61
2	58	40	49-50	58	56	60
3	54	35	49-50	55	53	58
4	51	33	49-50	58	58	60

[a] See Figure 2 in Appendix F for receptor locations.

[b] DNL = Average daily noise level.

Source: Charles M. Salter Associates. December 2018.

Mitigation Measure NOI-1. The standby engine generator building envelope shall be constructed of sound-attenuating materials equivalent to a STC[a] 37. Recommendations include the following:

[a] Sound Transmission Class – A single number standardized rating that is derived from laboratory sound insulation building elements (e.g., doors, walls, and floor-ceiling assemblies). Increasing STC ratings indicate improved sound insulation and less transmitted noise.

- The walls and roof would be an upgraded or augmented modular/prefabricated panel system, if available, or a more traditional framing system.
- Depending on location/orientation of doors, they will likely need to be gasketed.
- Depending on size and location, ventilation openings will also require sound attenuation measures with an effective sound insertion loss between 20 and 30 dB (A-weighted). This could be achieved by common sound attenuators including one or more of the following:

- A duct silencer or bank of silencers (typically 10 to 30 dB sound insertion loss)
- Acoustical louvers (typically 10 to 15 dB sound insertion loss)
- Duct/plenum internally lined with acoustical insulation (typically 5 to 20 dB sound insertion loss)

Mitigation Measure NOI-2. At each exhaust pipe of the engine exhaust systems a muffler shall be installed to provide an effective sound insertion loss of 35 dB (A-weighted).

Mitigation Measure NOI-3. Place exhaust fans behind noise barrier screen walls or locate within the building and ducted to the outdoor ventilation openings through similar sound attenuating measures described in NOI-1 for each ventilation opening. A minimum 15 dB (A-weighted) of effective sound insertion loss would be needed to reduce exhaust fan discharge noise.

Mitigation Measure NOI-4. Install outdoor HVAC units behind a noise barrier screen wall that a) will be at least two feet taller than the units, b) will be solid with no gaps, c) have a minimum surface weight of three pounds per square foot, d) constructed with a surface that is sound absorbing, which can be achieved with prefabricated insulated metal panels or a traditional solid wall with an applied sound absorbing finish.

Mitigation Measure NOI-5. Complete an updated noise analysis during the Project's design phase when the equipment selections and designs are finalized in order to confirm the details of necessary noise mitigation.

Vibration: Criterion M2. The vibration analysis in Appendix F addressed both construction and operational groundborne vibration. While vibration levels during construction would not be expected to exceed threshold limits related to building damage at any nearby sensitive receptor, there would be a few equipment operations such as a vibratory roller where vibration levels would be expected to exceed the threshold limits to human perception at any nearby sensitive receptors. Operationally, vibration generating generators and mechanical equipment have the potential to generate vibration at neighboring properties. Thus, the Project has the potential to generate significant adverse impacts related to construction and operation-related vibration levels. Mitigation measures are presented below to reduce impacts to less than significant levels.

Mitigation Measure NOI-6. Limit construction activities with the highest potential to produce significant vibration (e.g., such as a vibratory roller) to the least sensitive daytime hours. Residences within 500 feet of the Project site shall be notified once (in writing) of the proposed construction schedule before construction activities commence.

Mitigation Measure NOI-7. Insulate vibration-generating generators and mechanical equipment using spring isolation mounts and hangers per the American Society of Heating, Refrigerating and Air Conditioning Engineers guidelines.

Construction Noise: Criterion M4. Construction activities include use of heavy equipment for grading, foundation construction, building erection, and other activities that could cause short-term increases in ambient noise levels. Neighboring land uses with direct line-of-sight to construction activities and construction traffic could be affected by construction noise, which would vary with distance.

During City-standard daytime construction hours, construction activities are exempt from the standard Noise Ordinance limits (Section 9.40.043) pursuant to USD's UP-5-95 and construction activities outside these permitted construction hours only need to meet one of the two following standards (see Section 9.40.053 of the Noise Ordinance):

1. No individual piece of equipment shall produce a noise level exceeding 83 dBA at a distance of 25 feet.
2. The noise level at any point outside the property plane of the project shall not exceed 86 dBA.

Some construction equipment may generate intermittent noise levels up to 80 dBA to 85 dBA at a distance of 50 feet. These levels would meet the City Noise Ordinance limit of 86 dB outside the property plane and thus meet the City noise Ordinance regulations for daytime activity.

While Control Measure M1 confines construction activities to City-standard daytime construction hours with standards to be followed for extended work hours, noise-generating activities over the construction period, though temporary, could increase ambient noise levels at neighboring sensitive land-uses resulting in a significant adverse impact. Reasonable measures to manage construction activities should be implemented to reduce the potential noise impact, as feasible, are discussed below.

Deep foundations (e.g., piles or piers) may be required under the generator foundations. Impact pile driving noise can exceed 100 dB and would exceed the City daytime construction noise limit of 86 dB at any distance less than 300 feet (approximately). However, non-impact installation methods are being considered for the Project (e.g., vibratory, drilled and poured in place, etc.) as discussed in the Project's Geotechnical Design Report.

Mitigation Measure NOI-8: To reduce potential noise impact from construction-related activities, the following measures shall be employed:

- Properly muffle and maintain all construction equipment powered by internal combustion engines.
- Prohibit unnecessary idling of combustion engines.
- Locate all stationary noise-generating construction equipment such as air compressors as far as practical from existing nearby residences and other noise-sensitive land uses. Such equipment shall also be acoustically shielded.
- Select quiet construction equipment, particularly air compressors, whenever possible. Fit motorized equipment with proper mufflers in good working order.
- Residences located within 500 feet of the Project site shall be notified once (in writing) of the proposed construction schedule before construction activities commence (see Mitigation Measure NOI-6).
- The Contractor shall designate a Project Liaison responsible for responding to any local complaints about construction noise. The disturbance coordinator shall determine the cause of any noise complaint (e.g., starting too early, bad muffler, etc.) and shall require that reasonable measures be implemented to correct the problem. A telephone number for the disturbance coordinator shall be posted at the construction site.

N. POPULATION AND HOUSING

IMPACT ANALYSIS

Significance Criteria

RESOURCE CATEGORY / SIGNIFICANCE CRITERIA	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Beneficial Impact	Information Sources
N. <u>POPULATION AND HOUSING</u>						
Would the Project:						
1) Induce substantial population growth in an area, either directly (for example, by proposing new homes and business) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒	☐	13
2) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒	☐	13
3) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒	☐	13

No Impacts: Criteria N1-N3

As discussed in Chapter 1, the Project will replace existing standby generators to supply reliable standby power to existing plant electrical loads for peak demand periods, and facilitate power system expandability to accommodate the anticipated increase in peak plant power demand. The Project will have no impact relative to Criterion N1. The Project will also have no impact relative to Criteria N2 and N3. Pursuant to CEQA-Plus requirements, the Project will have no effect on minority and low-income populations (Executive Order 12989-Environmental Justice).

Mitigation Measures

None required.

O. PUBLIC SERVICES

IMPACT ANALYSIS

Significance Criteria

RESOURCE CATEGORY / SIGNIFICANCE CRITERIA	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Beneficial Impact	Information Sources
O. <u>PUBLIC SERVICES</u>						
Would the Project:						
1) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the construction of which would cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:						
a) Fire protection?	☐	☐	☐	☒	☐	13
b) Police protection?	☐	☐	☐	☒	☐	13
c) Schools?	☐	☐	☐	☒	☐	13
d) Parks?	☐	☐	☐	☒	☐	13
e) Electrical power or natural gas?	☐	☐	☐	☒	☐	13
f) Communication?	☐	☐	☐	☒	☐	13
g) Other public facilities?	☐	☐	☐	☒	☐	13

No Impacts: Criteria O1a-O1g

The proposed Project will have no public service impacts.

Mitigation Measures

None required.

P. RECREATION

IMPACT ANALYSIS

Significance Criteria

RESOURCE CATEGORY / SIGNIFICANCE CRITERIA	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Beneficial Impact	Information Sources
P. RECREATION						
Would the Project:						
1) 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?	☐	☐	☐	☒	☐	13
2) Include recreational facilities or require the construction of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒	☐	13

No Impacts: Criteria P1, P2

The proposed Project will not increase the use of local parks nor will it involve construction of new facilities.

Mitigation Measures

None required.

Q. TRANSPORTATION/TRAFFIC

IMPACT ANALYSIS

Control Measures Incorporated by USD

Q1. The Contractor shall prepare a traffic control plan (TCP) for review and approval by USD. The TCP will comply with USD standard specifications and address inconvenience to the general public, traffic flow with necessary safety devices and measures, obstruction of fire lanes, parking, and haul routes (with input from the City of Union City).

Significance Criteria

RESOURCE CATEGORY / SIGNIFICANCE CRITERIA	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Beneficial Impact	Information Sources
Q. <u>TRANSPORTATION/TRAFFIC</u>						
Would the Project:						
1) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐	☐	13
2) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐	☐	13
3) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒	☐	13

RESOURCE CATEGORY / SIGNIFICANCE CRITERIA	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Beneficial Impact	Information Sources
4) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?	☐	☐	☐	☒	☐	13
5) Result in inadequate emergency access?	☐	☐	☐	☒	☐	13
6) Conflict with adoptive policies, plans or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒	☐	13

No Impacts: Criteria Q3, Q4, Q5, Q6

The Project has no issues associated with air traffic patterns (Criterion Q3), will not increase hazards due to a design feature (Criterion Q4) will not result in inadequate emergency access (Criterion Q5), and will not conflict with public transit or bicycle and pedestrian facilities (Criterion Q6).

Less Than Significant Impacts: Criteria Q1, Q2

Circulation System Performance and Conflicts with Congestion Management Program: Criteria Q1 and Q2. The Project will have a less than significant impact relative to these criteria. The Project's construction activities will be completed in about one year. The WWTP has the necessary area for staging, parking, and storage of materials (Figure 2). Table 2 in Chapter 1 summarizes the number of trucks required for sitework activities. Under conservative assumptions that all excavated soil will be hauled off-site, about 20 truckloads/day will occur per day, or about 2 to 3 per hour. Imported concrete will amount to about 2 truckloads per day. Additional traffic would be associated with workers and import of other construction supplies. This level of truck traffic is minor and will not affect off-site traffic circulation. Control Measure Q1 requires the Contractor to prepare a TCP for USD review and approval prior to start of construction. The TCP will address needed traffic controls, safety measures, and haul routes acceptable to the City of Union City.

Mitigation Measures

None required.

R. UTILITIES AND SERVICE SYSTEMS

IMPACT ANALYSIS

Significance Criteria

RESOURCE CATEGORY / SIGNIFICANCE CRITERIA	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Beneficial Impact	Information Sources
R. <u>UTILITIES AND SERVICE SYSTEMS</u>						
Would the Project:						
1) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒	☐	13
2) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒	☐	13
3) Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒	☐	13
4) Have sufficient water supplies available to serve the Project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒	☐	13
5) 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?	☐	☐	☐	☒	☐	13
6) Be served by a landfill with sufficient permitted capacity to accommodate the Project's solid waste disposal needs?	☐	☐	☐	☒	☐	13
7) Comply with federal, state, and local statues and regulations related to solid waste?	☐	☐	☐	☒	☐	13

No Impacts: Criteria R1-R7

The proposed Project has no issues related to wastewater treatment requirements of the RWQCB (Criterion R1), construction of new water or wastewater treatment facilities or stormwater drainage facilities (Criteria R2 and R3), or wastewater treatment capacity (Criterion R5). Any water use during construction would be negligible, would be available from an on-site source, with no impact to local water supplies (Criterion R4). Standard measures in the construction industry are to have any solid waste materials generated during construction recycled to the extent possible with disposal of the remainder at a permitted landfill facility (Criteria R6, R7). No impact will occur.

Mitigation Measures

None required.

S. MANDATORY FINDINGS OF SIGNIFICANCE

IMPACT ANALYSIS

Significance Criteria

RESOURCE CATEGORY / SIGNIFICANCE CRITERIA	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Beneficial Impact	Information Sources
S. <u>MANDATORY FINDINGS OF SIGNIFICANCE</u>						
1) Does the Project have the potential to 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, 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?	☐	☒	☐	☐	☐	13, 20, 21

RESOURCE CATEGORY / SIGNIFICANCE CRITERIA	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Beneficial Impact	Information Sources
2) 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 current projects, and the effects of probable future projects)?	☐	☐	☐	☒	☐	13
3) Does the Project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐	☐	13

Criterion R1. The Project will not eliminate important examples of the major periods of California history or prehistory. Mitigation Measures ARCH 1-3 shall be implemented to address accidental discovery of archaeological resources or redeposited human remains, an event considered to be extremely unlikely. Mitigation Measure BIO-1 shall be required to avoid inadvertent take of bird nests protected under the federal Migratory Bird Treaty Act and State Fish and Game Code, in the remote possibility that new bird nests could be established in the few scattered trees and other structures in the APE.

Criterion R2. The Project is a short-term construction activity to construct a new Standby Power Building and ancillary equipment. Potentially significant impacts will be mitigated to less than significant levels. Cumulatively considerable impacts will not occur.

Criterion R3. Construction workers will be at risk due to excavation activities. However, the Contract Documents will contain the necessary safeguards for the protection of the health and safety of workers. Construction and operational noise and vibration levels could affect surrounding residential land uses and a future religious temple. However, mitigation measures shall be required to reduce impacts to acceptable levels. The impact is less than significant with mitigation incorporated.

Chapter 4

CHECKLIST AND INFORMATION SOURCES

1. City of Union City General Plan Land Use Map. January 25, 2017.
2. City of Union City Zoning Map. January 20, 2017.
3. Brown and Caldwell. Final Standby Power Generation System Upgrade Project Preliminary Design Report. February 9, 2018.
4. FACS. Hazardous Materials Investigation, Standby Power Generation Upgrade Project. November 26, 2018.
5. FACS. Pre-Renovation PCB Testing Report. Standby Power Generation Upgrade Project. November 30, 2018.
6. CE&G. Draft Geotechnical Design Report, Union Sanitary District Standby Generator Building. December 21, 2018.

6a. CE&G. Environmental Soil Screening Test Results, Standby Generator Building Project. December 14, 2018.

7. Brown and Caldwell. Electrical Load Analysis Draft Technical Memorandum. July 2018.
8. Personal Communication from Kevin Chun, Union Sanitary District. November 19, 2018.
9. Joan Malloy, Union City Economic and Community Development Director, Staff Report to City Planning Commission on Shri Guru Ravidass Sabha Bay Area Faith-based Facility. November 16, 2017.
10. ICF. Initial Study/Mitigated Negative Declaration on 31252 Veasy Street Religious Facility Project. October 2017.
11. Union City 511 Area Specific Plan, approved by City Council of September 14, 1997.
12. Archeo-Tec. Phase 1 Cultural Resource Assessment Report for USD Emergency Outfall Project. March 14, 2018.
13. Professional judgment and expertise of the environmental specialist preparing this assessment, based upon a review of the Project site and surrounding conditions, and a review of engineering documents.
14. http://www.conservation.ca.gov
15. BAAQMD. Air Quality Standards and Attainment Status, available at http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status, last updated January 5, 2017.
16. BAAQMD, Spare the Air: Cool the Climate–Final 2017 Clean Air Plan. Adopted April 19, 2017.
17. BAAQMD. CEQA Air Quality Guidelines. May 2017.
18. Brown and Caldwell. Technical Memorandum, Emission Estimates from Construction Activities for Standby Power System Project. December 3, 2018.
19. Brown and Caldwell. Standby Power Generation System Upgrade Project Air Permit Application. January 11, 2019.
20. Environmental Collaborative. Biological Resource Assessment for the USD Standby Power Project. October 1, 2018.

21. Archeo-Tec Phase 1 Cultural Resource Assessment Report for the Standby Power Generation System Upgrade Project. December 6, 2018.
22. USEPA. GHG Equivalencies Calculator. .Available at https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator. Accessed: December 12, 2018.
23. Donna Rammell. Brown and Caldwell. December 12, 2018.
24. City of Union City. Climate Action Plan. November 2010.
25. http://geotracker.swrcb.ca.gov
26. http://www.dtsc.ca.gov/SiteCleanup/CorteseList
27. Brown and Caldwell. Alvarado WWTP Annual Groundwater Monitoring Report. 2017.
28. Kristine Tidwell. Brown and Caldwell Principal Geologist. April 25, 2018.
29. FEMA. Flood Insurance Rate Map for Union City. Effective August 3, 2009.
30. http://www.rivers.gov/publicatins.html.WildandScenicPublications.
31. http://epa.gov/region09/water/groundwater/ssa.html
32. ESA PWA. USD Preliminary Study of the Effect of Sea Level Rise on District Infrastructure Report. June 2013.
33. Charles M. Salter Associates. Environmental Noise and Vibration Technical Background Report for the USD Standby Power Generation System Upgrade Project. January 3, 2019
34. USD Conditional Use Permit UP-5-95 with the City of Union City.
35. City of Union City. Draft Safety Element of the Union City 2040 General Plan. June 6, 2018.
36. Union City Noise Ordinance 275-861 (part), 1986.

APPENDIX A

Mitigation Monitoring and Reporting Plan

MITIGATION MONITORING AND REPORTING PLAN

The following mitigation measures shall be implemented to reduce the impact to less than significant levels:

Potential Impact	Mitigation Measure	Responsibility	Action	Completion Date
D. Biological Resources				
D1. Impact to Special-Status Species	**BIO-1.** Adequate measures shall be taken to avoid inadvertent take of bird nests protected under the federal Migratory Bird Treaty Act and State Fish and Game Code when in active use. This shall be accomplished by taking the following steps. • If initial construction is proposed during the nesting season (February 1 to August 31), a focused survey for nesting raptors and other migratory birds shall be conducted by a qualified biologist within 7 days prior to the onset of construction in order to determine whether any active nests are present in the APE and surrounding area within 100 feet of proposed construction. The survey shall be reconducted any time construction has been delayed or curtailed for more than 7 days during the nesting season. • If no active nests are identified during the construction survey period, or development is initiated during the non-breeding season (September 1 to January 31), construction may proceed with no restrictions. • If bird nests are found, an adequate setback shall be established around the nest location and construction activities restricted within this no-disturbance zone until the qualified biologist has confirmed that any young birds have fledged and are able to function outside the nest location. Required setback distances for the no-disturbance zone shall be based on input received from the CDFW, and may vary depending on species and sensitivity to disturbance. As necessary, the no-disturbance zone shall be fenced with temporary orange construction fencing if construction is to be initiated elsewhere in the APE. • A report of findings shall be prepared by the qualified biologist and submitted to the District for review and approval prior to initiation of construction during the nesting season (February 1 to August 31). The report shall either confirm absence of any active nests or should confirm that any young are located within a designated no-disturbance zone and construction can proceed. No report of	Contractor* USD *Hire qualified biologist	Conduct pre-construction survey	Prior to start of construction

Potential Impact	Mitigation Measure	Responsibility	Action	Completion Date
	findings is required if construction is initiated during the non-nesting season (September 1 to January 31) and continues uninterrupted according to the above criteria.			
E. Cultural Resources				
E1-E4. Impact to historic, archaeological, and paleontological resources and disturbed or redeposited human remains	**ARCH 1:** Once the Project's construction plan has been finalized, an archaeologist shall be retained to develop and implement a monitoring and reporting plan.	Contractor/ USD* *hire qualified archaeologist	Develop plan	Prior to construction
	ARCH 2: An archaeologist shall be retained to prepare an archaeological "Alert Sheet" which will be distributed to the construction crew. A brief, on-site education session with the construction crew shall be conducted. The Alert Sheet will identify the procedures to be followed in the event of accidental discovery of historic, archaeological, or paleontological resources in compliance with the California Health and Safety Code and the Public Resources Code.	Contractor/ USD	Prepare "Alert Sheet," have session	Prior to start of construction
	ARCH 3: Soils emerging from pile driving within the engine generation building site shall be intermittently inspected by an on-site archaeologist.	Contractor/USD	Spot monitoring	During pile driving excavation
	ARCH 4: Archaeological monitoring shall occur during excavation of the western portion of the engine generator building site.	Contractor/USD	Monitoring during excavation of western portion of the site	During construction
	ARCH 5: If an archaeological deposit is found—whether archaeologist identifies an intact and potentially significant archaeological resource, he or she shall develop a treatment plan in consultation with the Union Sanitary District, the SWRCB, tribal representatives (in the event of a prehistoric site) and the State Historic Preservation Officer (SHPO). This plan would likely entail a program of systematic data recovery in which cultural materials are documented and removed.	Contractor/USD	Develop treatment plan	During construction
	ARCH 6: If human remains are encountered, the following procedures will be implemented: a. Per the stipulations of the California Health and Safety Code Section 7050.5(b), the Alameda County Coroner's Office will be contacted immediately; this will occur whether or not a Most Likely Descendant has already been appointed. b. The Coroner's Office has two working days in which to examine the identified remains. If the Coroner determines that the remains are Native American, then—if a Most Likely Descendant has not yet been appointed—the Office will notify the	Contractor/USD	Follow requirements of Health and Safety Code	During construction

Potential Impact	Mitigation Measure	Responsibility	Action	Completion Date
	Native American Heritage Commission (NAHC) within 24 hours. c. Following receipt of the Coroner's Office notice, the NAHC will contact a Most Likely Descendant. The Most Likely Descendant then has 48 hours in which they can make recommendations to the project sponsor and consulting archaeologist regarding the treatment and/or re-interment of the human remains and any associated grave goods. d. Appropriate treatment and disposition of Native American human remains and associated grave goods will be collaboratively determined in consultation between the appointed Most Likely Descendant, the consulting archaeologist, and the landowner or authorized representative. The treatment of human remains may potentially include the preservation, excavation, analysis and/or reburial of those remains and any associated artifacts. e. If the remains are determined not to be Native American, the Coroner, archaeological research team, and USD will collaboratively develop a procedure for the appropriate study, documentation, and ultimate disposition of the historic human remains.			
M. Noise				
M1, M3. Impact of equipment operation to ambient and average daily noise levels and local standards	**Mitigation Measure NOI-1.** The Standby Power Building envelope shall be constructed of sound-attenuating materials equivalent to a STC 37. Recommendations include the following: • The walls and roof would be an upgraded or augmented modular/prefabricated panel system, if available, or a more traditional framing system. • Depending on location/orientation of doors, they will likely need to be gasketed. • Depending on size and location, ventilation openings will also require sound attenuation measures with an effective sound insertion loss between 20 and 30 dB (A-weighted). This could be achieved by common sound attenuators including one or more of the following: ・ A duct silencer or bank of silencers (typically 10 to 30 dB sound insertion loss) ・ Acoustical louvers (typically 10 to 15 dB sound insertion loss) ・ Duct/plenum internally lined with acoustical insulation (typically 5 to 20 dB sound insertion loss)	USD	Require design to include	During design and construction

Potential Impact	Mitigation Measure	Responsibility	Action	Completion Date
	Mitigation Measure NOI-2. At each exhaust pipe of the engine exhaust systems a muffler shall be installed to provide an effective sound insertion loss of 35 dB (A-weighted).	USD	Require design to include	During design and construction
	Mitigation Measure NOI-3. Place exhaust fans behind noise barrier screen walls or locate within the building and ducted to the outdoor ventilation openings through similar sound attenuating measures described in NOI-1 for each ventilation opening. A minimum 15 dB (A-weighted) of effective sound insertion loss would be needed to reduce exhaust fan discharge noise.	USD	Require design to include	During design and construction
	Mitigation Measure NOI-4. Install outdoor HVAC units behind a noise barrier screen wall that a) will be at least two feet taller than the units, b) will be solid with no gaps, c) have a minimum surface weight of three pounds per square foot, d) constructed with a surface that is sound absorbing, which can be achieved with prefabricated insulated metal panels or a traditional solid wall with an applied sound absorbing finish.	USD	Require design to include	During design and construction
	Mitigation Measure NOI-5. Complete an updated noise analysis during the Project's design phase when the equipment selections and designs are finalized in order to confirm the details of necessary noise mitigation.	USD	Update noise analysis	During design
M2. Impact of construction and operational groundborne vibration on adjacent land uses	**Mitigation Measure NOI-6.** Limit construction activities with the highest potential to produce significant vibration (e.g., such as a vibratory roller) to the least sensitive daytime hours. Residences within 500 feet of the Project site shall be notified once (in writing) of the proposed construction schedule before construction activities commence.	USD/Contractor	Notify adjacent property owners, limit use of construction equipment with high vibration generation	Prior to and during construction
	Mitigation Measure NOI-7. Insulate vibration-generating generators and mechanical equipment using spring isolation mounts and hangers per the American Society of Heating, Refrigerating and Air Conditioning Engineers guidelines.	USD/Contractor	Require design to include	During design and construction
M4. Impact of construction activity on ambient noise levels and neighboring land uses	**Mitigation Measure NOI-8:** To reduce potential noise impact from construction-related activities, the following measures shall be employed: • Properly muffle and maintain all construction equipment powered by internal combustion engines. • Prohibit unnecessary idling of combustion	USD/Contractor	Condition Contract Documents, implement during construction	Prior to and during construction

Potential Impact	Mitigation Measure	Responsibility	Action	Completion Date
	engines. • Locate all stationary noise-generating construction equipment such as air compressors as far as practical from existing nearby residences and other noise-sensitive land uses. Such equipment shall also be acoustically shielded. • Select quiet construction equipment, particularly air compressors, whenever possible. Fit motorized equipment with proper mufflers in good working order. • Residences within 500 feet of the Project site shall be notified once (in writing) of the proposed construction schedule before construction activities commence (see Mitigation Measure NOI-6). • The Contractor shall designate a Project Liaison responsible for responding to any local complaints about construction noise. The disturbance coordinator shall determine the cause of any noise complaint (e.g., starting too early, bad muffler, etc.) and shall require that reasonable measures be implemented to correct the problem. A telephone number for the disturbance coordinator shall be posted at the construction site.			

APPENDIX B

Air Quality Technical Appendix

for Construction Emissions

Brown AND Caldwell

201 North Civic Drive, Suite 300
Walnut Creek, CA 94596

T: 925.937.9010
F: 925.937.9026

Technical Memorandum

FINAL

Prepared for: Union Sanitary District

Project Title: Standby Power Generation System Upgrade Project

BC Project No.: 151832

USD Project No.: 800-452

Technical Memorandum

Subject: Emission Estimates from Construction Activities

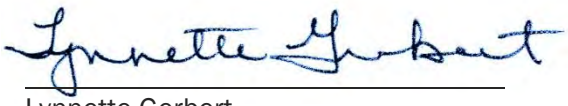
Date: January 15, 2019

To: Paul Scheidegger, Scheidegger & Associates

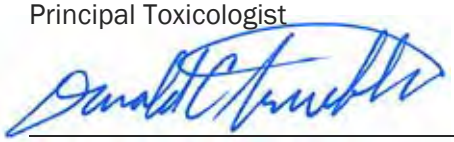
From: Lynnette Gerbert, Brown and Caldwell

Copy to: Mallika Ramanathan, Brown and Caldwell

Donna Rammell, Brown and Caldwell

Prepared by: 

Lynnette Gerbert
Principal Toxicologist

Reviewed by: 

Donald C Trueblood
Senior Expert

Table of Contents

List of Tables

Emissions Estimation Methods

Brown and Caldwell evaluated the construction of the Standby Power Generation System Upgrade Project and estimated emissions associated with on-road and off-road construction activities. Table 1 presents details for each phase of construction. For off-road components, details for each piece of equipment are provided, including hours of use, representative horsepower and quantity of fuel used. For on-road components, hauling trips and worker trips are detailed, including number of vehicles, miles traveled, and quantity of fuel used. Various resources were used to compile representative horsepower, gallons of fuel per horsepower, and miles per gallon for hauling and worker trips. These resources are referenced in Table 1. Emissions are summarized in Table 2.

Section 1: Criteria Emission Estimates

1.1 Criteria Emission Estimates

Emissions of NOx, PM and THC were calculated for the off-road construction components using load and emission factors from the Off-Road Diesel Analysis Section (ORDAS) database. Emissions of ROG, CO, NOx, PM10, PM2.5 and SOx were calculated for on-road construction components using emission factors from the CARB EMFAC 2014 database. Details for each set of calculations are described below and presented in Tables 3 and 4, respectively.

1.2 Off-Road Construction Components

In order to select emission rates for each piece of equipment, the following information was entered into the ORDAS database:

- a load factor based on one of the equipment types available in the database – equipment specific
- representative horsepower – equipment specific
- calendar year (date of project) – set to 2020 for all equipment
- model year – set to 2010 for all equipment
- hours to be used during the project – equipment specific

Once the emission rate was determined for each piece of equipment, the emission calculations were straightforward:

> Emissions(tons/project) = Emission Rate (g/bhp-hr) x Representative horsepower x Pieces of Equipment x 1.10234E-6 ton/g x Hours per Piece of Equipment

1.3 On-Road Construction Components

In order to select emission rates for hauling and worker trips, the following information was entered into the EMFAC database:

- Region Type: Air District
- Region: Bay Area AQMD
- Calendar Year: 2020
- Season: Annual

For hauling trips, the “T6 instate heavy – Medium-Heavy Duty Diesel Instate Truck with GVWR>26000 lbs” category of emission rates was selected as most representative of trucks used for hauling. For worker trips,

the “LDA – Passenger Car” category of emission rates was selected as most representative of a worker’s vehicle.

Once the emission rate was determined for each piece of equipment, the emission calculations were straightforward:

Emissions (tons/project) = Emission Rate (g/mile) x Total Number of Miles x 1.10234E-6 ton/g

Section 2: Greenhouse Gas Emission Estimates

Emissions of CO2, CH4 and N2O were calculated for both the off-road and on-road construction components, using emission factors compiled from the Local Government Operations Protocol, For the Quantification and Reporting of Greenhouse Gas Emissions Inventories, Version 1.1 May 2010. These emission factors were based on vehicle/equipment and fuel type. Global warming potentials, also from the Local Government Operations Protocol, were used to convert emissions of CH4 and N2O into CO2 equivalents. Emission calculations are presented in Table 5.

Once the emission rate was determined for vehicle and each piece of equipment, the emission calculations were straightforward:

Emissions = Fuel Usage (gallons) x Emission Factor (kg/gallon) x 0.001 (kg/metric ton)

Section 3: CEQA Significance Evaluation

In order to determine whether construction emissions represent a significant impact, the average daily emissions were compared to the significance thresholds outline in the BAAQMD CEQA Guidelines dated May 2017. In order to calculate average daily emissions, a total project completion time of 313 days was used. As shown in Table 6, none of the significance thresholds are exceeded. Therefore, it is concluded that construction of the Standby Power Generation System Upgrade Project at Union Sanitary District’s wastewater treatment plant will NOT have a significant impact on air quality.

Tables

This page intentionally left blank.

Table 1. Construction Project Details
USD - Standby Power System Project

Off-Road Construction Components	Equipment	Representative horesepower (1)	Pieces of Equipment	Average Hours Used Per Day	Number of Work Days	Hours Per Project	Fuel Type	Gallons of Fuel per HP-hr (2)	Gallons of Fuel
Site Prep/Mobilization	Concrete saw	65	1	1	5	5	Diesel	0.05	16.3
	Crane - Small	60	1	4	10	40	Diesel	0.05	120.0
	Excavator - Large	250	1	4	10	40	Diesel	0.05	500.0
Excavation, Lay, Backfill	Excavator - large	250	1	4	21	84	Diesel	0.05	1050.0
	Backhoe	100	1	4	58	232	Diesel	0.05	1160.0
	Concrete saw	65	2	1	43	86	Diesel	0.05	279.5
	Dump truck	400	Accounted for Below						
	Plate Compactor	100	2	2	15	60	Diesel	0.05	300.0
	Sweeper	100	1	2	29	58	Diesel	0.05	290.0
	Skid-steer - Small	60	1	4	43	172	Diesel	0.05	516.0
	Water truck	400	1	1	29	29	Diesel	0.05	580.0
	Rotary-Screw Air Compressor - 250 cfm	60	1	2	58	116	Diesel	0.05	348.0
Construction - Concrete	Concrete Delivery Truck	400	Accounted for Below						
	Grout Pump	20	1	2	39	78	Diesel	0.05	78.0
	Sweeper	100	1	2	17	34	Diesel	0.05	170.0
	Water truck	400	1	1	39	39	Diesel	0.05	780.0
Construction - Steel	Crane - Large	150	2	2	20	80	Diesel	0.05	600.0
	Loader	200	1	2	20	40	Diesel	0.05	400.0
	Rotary-Screw Air Compressor - 250 cfm	60	1	2	20	40	Diesel	0.05	120.0
	Welder	50	1	1	20	20	Diesel	0.05	50.0
Install - Generator	Crane - Large	150	1	2	20	40	Diesel	0.05	300.0
	Crane - Small	60	1	4	20	80	Diesel	0.05	240.0
	Forklift	150	1	2	20	40	Diesel	0.05	300.0
	Rotary-Screw Air Compressor - 250 cfm	60	1	2	20	40	Diesel	0.05	120.0
	Telescopic Handler	60	1	4	20	80	Diesel	0.05	240.0
	Welder	50	2	4	20	160	Diesel	0.05	400.0
Install - Electrical	Forklift	150	1	1	190	190	Diesel	0.05	1425.0
Demolition - General	Backhoe	100	1	6	25	150	Diesel	0.05	750.0
	Concrete Saw	65	1	4	15	60	Diesel	0.05	195.0
	Dozer - Large	200	1	6	15	90	Diesel	0.05	900.0
	Excavator - Medium	175	1	4	15	60	Diesel	0.05	525.0
	Dump Truck	400	Accounted for Below						
	Forklift	150	1	4	35	140	Diesel	0.05	1050.0
	Rotary-Screw Air Compressor - 250 cfm	60	1	2	40	80	Diesel	0.05	240.0
	Skid-Steer - Small	60	1	4	50	200	Diesel	0.05	600.0
	Sweeper	100	1	2	25	50	Diesel	0.05	250.0
	Water truck	400	1	4	25	100	Diesel	0.05	2000.0
Demolition - Generators	Crane - Large	150	1	4	18	72	Diesel	0.05	540.0

Table 1. Construction Project Details
USD - Standby Power System Project

Off-Road Construction Components	Equipment	Representative horesepower (1)	Pieces of Equipment	Average Hours Used Per Day	Number of Work Days	Hours Per Project	Fuel Type	Gallons of Fuel per HP-hr (2)	Gallons of Fuel
	Forklift	150	1	4	33	132	Diesel	0.05	990.0
	Rotary-Screw Air Compressor - 250 cfm	60	1	2	25	50	Diesel	0.05	150.0
	Dump Truck	400	Accounted for Below						
Demolition - Electrical	Dump Truck	400	Accounted for Below						
	Forklift	150	1	4	9	36	Diesel	0.05	270.0
	Rotary-Screw Air Compressor - 250 cfm	60	1	2	9	18	Diesel	0.05	54.0
							TOTAL GALLONS DIESEL		18,897

On-Road Construction Components	Total Vehicle Trips	Roundtrip Distance (mi)	Fuel Economy (mpg)[3,4]	Fuel Used (gal)
Worker Vehicles (gasoline)	2,188	40	24	3,646
Dump Trucks (diesel)	1,461	60	6.53	13,424
Cement Trucks (diesel)	114	60	6.53	1,047

Sources:

1. Representative Horsepower
   EPA, 2012. Methodology for Understanding and Reducing a Project's Environmental Footprint. EPA 542-R-002. February 2012. (unless noted below)
   Google searches for Sweeper, Concrete Saw, Forklift, Welder, Large
   Professional Judgement for Dewatering Pump and Generator
2. Gallons of Fuel per HP-hr
   EPA, 2012. Methodology for Understanding and Reducing a Project's Environmental Footprint. EPA 542-R-002. February 2012.
3. MPG for worker trips (gasoline cars)
   EPA, 2012. Methodology for Understanding and Reducing a Project's Environmental Footprint. EPA 542-R-002. February 2012.
4. MPG for hauling trips (diesel trucks)
   Huai et al., 2006. Analysis of heavy-duty diesel truck activity and emissions data. Atmospheric Environment 40 (2006) 2333-2340.
   Table 4: Average fuel economy (6.53 mpg) for Detroit Diesel (6.4 mpg), CAT (6.0 mpg) and Cummins Trucks (7.2 mpg)

Equations:

Hours per Project = Pieces of Equipment x Average Hours Used per Day x Number of Work Days
Off-Road Gallons of Fuel = Hours per Project x Representative Horsepower x Gallons of Fuel per HP per hour
On-Road Gasoline Gallons = Total Project Mileage / Gasoline MPG
On-Road Diesel Gallons = Total Project Mileage / Diesel MPG

Table 2. Summary of Estimated Emissions During Construction USD - Standby Power System Project							
	Emissions, tons/project						
Construction Scenario	ROG	CO	NOx	PM10	PM2_5	SOx	CO2e
Off-Road Equipment							
Project Construction	4.72E-02		1.14E+00	5.27E-02	5.27E-02		195
On-Road Equipment							
Worker Vehicles	1.22E-03	6.26E-02	5.92E-03	1.70E-04	1.56E-04	2.70E-04	32
Dump Trucks	7.83E-03	2.89E-02	2.65E-01	1.20E-03	1.15E-03	1.11E-03	138
Cement Trucks	6.11E-04	2.25E-03	2.07E-02	9.37E-05	8.96E-05	8.63E-05	11
Total Project Construction	**5.68E-02**	**9.38E-02**	**1.43E+00**	**5.41E-02**	**5.41E-02**	**1.46E-03**	**376**
	Emissions, pounds/day						
Construction Scenario	ROG	CO	NOx	PM10	PM2_5	SOx	CO2e
Contruction timeframe (days/project)	313	313	313	313	313	313	313
Total Project Construction	**0.36**	**0.60**	**9.17**	**0.35**	**0.35**	**0.0093**	**2,401**

Equation:

Emissions (pounds/day) = Emissions (tons/project) x 2000lb/ton / Construction timeframe (days/project)

Acronyms/Abbreviations:

ROG - Reactive Organic Gases

CO - Carbon Monoxide

NOx - Nitrogen Oxides

PM10 - the fraction of particles with an aerodynamic diameter less than or equal to 10 micrometers

PM2_5 - the fraction of particles with an aerodynamic diameter less than or equal to 2.5 micrometers

SOx - Sulfur Oxides

CO2e - carbon dioxide equivalent

Table 3. Criteria Pollutant Estimated Emissions During Construction
Off-Road Construction Components
USD - Standby Power System Project

Off-Road Construction Components	Equipment	Representative horsepower (1)	Pieces of Equipment	Hours per Piece of Equipment	Load Factor (1)	Load Factor Basis	Emission Rates (1)			Emissions, tons/project		
							NOx g/bhp-hr	PM g/bhp-hr	THC g/bhp-hr	NOx	PM	THC
Site Prep/Mobilization	Concrete saw	65	1	5	0.31	Portable Equipment	2.79	0.15	0.09	1.00E-03	5.41E-05	3.26E-05
	Crane - Small	60	1	40	0.29	Cranes	2.80	0.15	0.10	7.42E-03	4.10E-04	2.62E-04
	Excavator - Large	250	1	40	0.38	Excavator	2.55	0.09	0.10	2.81E-02	9.96E-04	1.09E-03
Excavation, Lay, Backfill	Excavator - large	250	1	84	0.38	Excavator	2.57	0.09	0.11	5.94E-02	2.14E-03	2.52E-03
	Backhoe	100	1	232	0.37	Tractors/Loaders/Backhoes	2.93	0.14	0.14	7.49E-02	3.64E-03	3.64E-03
	Concrete saw	65	2	43	0.31	Portable Equipment	2.81	0.16	0.10	1.73E-02	9.57E-04	6.14E-04
	Dump truck	400	Accounted for Below	0								
	Plate Compactor	100	2	30	0.38	Roller	2.85	0.12	0.10	1.89E-02	8.24E-04	6.40E-04
	Sweeper	100	1	58	0.46	Sweepers/Scrubbers	2.86	0.13	0.10	1.83E-02	8.12E-04	6.59E-04
	Skid-steer - Small	60	1	172	0.37	Skid Steer Loader	2.85	0.17	0.13	3.25E-02	1.93E-03	1.46E-03
	Water truck	400	1	29	0.46	Sweepers/Scrubbers	2.43	0.10	0.10	3.11E-02	1.29E-03	1.23E-03
	Rotary-Screw Air Compressor - 250 cfm	60	1	116	0.31	Portable Equipment	2.83	0.16	0.12	2.17E-02	1.25E-03	8.91E-04
Construction - Concrete	Concrete Delivery Truck	400	Accounted for Below	0								
	Grout Pump	20	1	78	0.31	Portable Equipment	3.89	0.22	0.12	6.68E-03	3.82E-04	2.03E-04
	Sweeper	100	1	34	0.46	Sweepers/Scrubbers	2.85	0.12	0.10	1.07E-02	4.68E-04	3.66E-04
	Water truck	400	1	39	0.46	Sweepers/Scrubbers	2.44	0.10	0.10	4.19E-02	1.75E-03	1.70E-03
Construction - Steel	Crane - Large	150	2	40	0.29	Cranes	2.86	0.13	0.10	3.78E-02	1.66E-03	1.31E-03
	Loader	200	1	40	0.37	Tractors/Loaders/Backhoes	2.55	0.09	0.10	2.25E-02	7.96E-04	8.73E-04
	Rotary-Screw Air Compressor - 250 cfm	60	1	40	0.31	Portable Equipment	2.80	0.15	0.10	7.42E-03	4.10E-04	2.62E-04
	Welder	50	1	20	0.31	Portable Equipment	2.80	0.15	0.09	3.08E-03	1.68E-04	1.04E-04
Install - Generator	Crane - Large	150	1	40	0.29	Cranes	2.86	0.13	0.10	1.89E-02	8.30E-04	6.55E-04
	Crane - Small	60	1	80	0.29	Cranes	2.82	0.16	0.11	1.49E-02	8.43E-04	5.71E-04
	Forklift	150	1	40	0.2	Forklifts	2.86	0.13	0.10	1.89E-02	8.30E-04	6.55E-04
	Rotary-Screw Air Compressor - 250 cfm	60	1	40	0.31	Portable Equipment	2.80	0.15	0.10	7.42E-03	4.10E-04	2.62E-04
	Telescopic Handler	60	1	80	0.31	Portable Equipment	2.82	0.16	0.11	1.49E-02	8.43E-04	5.71E-04
	Welder	50	2	80	0.31	Portable Equipment	2.82	0.16	0.11	2.49E-02	1.41E-03	9.52E-04
Install - Electrical	Forklift	150	1	190	0.2	Forklifts	2.91	0.14	0.13	9.15E-02	4.35E-03	4.17E-03
Demolition - General	Backhoe	100	1	150	0.37	Tractors/Loaders/Backhoes	2.90	0.14	0.12	4.79E-02	2.23E-03	2.05E-03
	Concrete Saw	65	1	60	0.31	Portable Equipment	2.81	0.16	0.10	1.21E-02	6.76E-04	4.45E-04
	Dozer - Large	200	1	90	0.4	Rubber Tired Dozers	2.57	0.09	0.11	5.10E-02	1.84E-03	2.19E-03
	Excavator - Medium	175	1	60	0.38	Excavator	2.56	0.09	0.10	2.96E-02	1.06E-03	1.20E-03
	Dump Truck	400	Accounted for Below	0								
	Forklift	150	1	140	0.2	Forklifts	2.89	0.13	0.12	6.70E-02	3.11E-03	2.81E-03
	Rotary-Screw Air Compressor - 250 cfm	60	1	80	0.31	Portable Equipment	2.82	0.16	0.11	1.49E-02	8.43E-04	5.71E-04
	Skid-Steer - Small	60	1	200	0.37	Skid Steer Loader	2.86	0.17	0.14	3.79E-02	2.28E-03	1.79E-03
	Sweeper	100	1	50	0.46	Sweepers/Scrubbers	2.86	0.13	0.10	1.58E-02	6.96E-04	5.58E-04
	Water truck	400	1	100	0.46	Sweepers/Scrubbers	2.45	0.10	0.11	1.08E-01	4.61E-03	4.96E-03
Demolition - Generators	Crane - Large	150	1	72	0.29	Cranes	2.87	0.13	0.11	3.42E-02	1.53E-03	1.26E-03
	Forklift	150	1	132	0.2	Forklifts	2.89	0.13	0.12	6.31E-02	2.91E-03	2.61E-03
	Rotary-Screw Air Compressor - 250 cfm	60	1	50	0.31	Portable Equipment	2.81	0.16	0.10	9.29E-03	5.16E-04	3.35E-04
	Dump Truck	400	Accounted for Below	0								

Table 3. Criteria Pollutant Estimated Emissions During Construction Off-Road Construction Components USD - Standby Power System Project												
Off-Road Construction Components	Equipment	Representative horsepower (1)	Pieces of Equipment	Hours per Piece of Equipment	Load Factor (1)	Load Factor Basis	Emission Rates (1)			Emissions, tons/project		
							NOx g/bhp-hr	PM g/bhp-hr	THC g/bhp-hr	NOx	PM	THC
Demolition - Electrical	Dump Truck	400	Accounted for Below	0								
	Forklift	150	1	36	0.2	Forklifts	2.86	0.13	0.10	1.70E-02	7.45E-04	5.84E-04
	Rotary-Screw Air Compressor - 250 cfm	60	1	18	0.31	Portable Equipment	2.80	0.15	0.09	3.33E-03	1.82E-04	1.12E-04
									Project Construction	1.14E+00	5.27E-02	4.72E-02

Source:

1. Off-Road Load Factor and Emission Rates
   https://www.arb.ca.gov/msei/ordiesel.htm
   ORDAS_EF_FCF_2017_v7
   Assumed project year 2020
   Assumed all equipment 10 years old
   Emission Rates incorporate load factor

Equations:

Emissions(tons/project) = Emission Rate (g/bhp-hr) x Representative horsepower x Pieces of Equipment x 1.10234E-6 ton/g x Hours per Piece of Equipment

Note:

THC = ROG

Table 4. Criteria Pollutant Estimated Emissions During Construction
On-Road Construction Components
USD - Standby Power System Project

On-Road Construction Components	Vehicle Category	Fuel Type	Total Number of miles	Emission Rates, g/mile						Emissions, tons/project					
				ROG	CO	NOx	PM10	PM2_5	SOx	ROG	CO	NOx	PM10	PM2_5	SOx
Worker Vehicles	LDA	Gasoline	87,500	1.27E-02	6.49E-01	6.13E-02	1.76E-03	1.62E-03	2.80E-03	1.22E-03	6.26E-02	5.92E-03	1.70E-04	1.56E-04	2.70E-04
Dump Trucks	T6 instate heavy	Diesel	87,660	8.11E-02	2.99E-01	2.74E+00	1.24E-02	1.19E-02	1.14E-02	7.83E-03	2.89E-02	2.65E-01	1.20E-03	1.15E-03	1.11E-03
Cement Trucks	T6 instate heavy	Diesel	6,840	8.11E-02	2.99E-01	2.74E+00	1.24E-02	1.19E-02	1.14E-02	6.11E-04	2.25E-03	2.07E-02	9.37E-05	8.96E-05	8.63E-05
									Total On-Road Emissions	**9.66E-03**	**9.38E-02**	**2.91E-01**	**1.46E-03**	**1.39E-03**	**1.46E-03**

Source:
On-Road Emission Rates
EMFAC2014 (v1.0.7) Emission Rates
Region Type: Air District
Region: Bay Area AQMD
Calendar Year: 2020
Season: Annual
T6 instate heavy - Medium-Heavy Duty Diesel instate Truck with GVWR>26000 lbs
LDA - Passenger Car

Equations:
Emissions (tons/project) = Emission Rate (g/mile) x Total Number of Miles x 1.10234E-6 ton/g

Table 5. Greenhouse Gas Estimated Emissions During Construction Calculations Using Local Operations Protocol for Greenhouse Gas Assessment USD - Standby Power System Project												
Information on Usage			Emission Factors, kg/gallon			GWP			Emissions, metric tons			
Project Component	Fuel Type	Fuel Usage (gallons)	CO2	CH4	N2O	CO2	CH4	N2O	CO2	CH4	N2O	CO2e
Off-Road Construction Components												
Project Construction	Diesel	18,897	10.21	5.80E-04	2.60E-04	1	21	310	193	1.10E-02	4.91E-03	195
On-Road Construction Components												
Worker Vehicles	Gasoline	3,646	8.78	1.72E-05	3.80E-06	1	21	310	32	6.27E-05	1.39E-05	32
Dump Trucks	Diesel	13,424	10.21	5.80E-04	2.60E-04	1	21	310	137	7.79E-03	3.49E-03	138
Cement Trucks	Diesel	1,047	10.21	5.80E-04	2.60E-04	1	21	310	11	6.08E-04	2.72E-04	11
										Total Project Construction		**376**

Source of Emission Factors and Global Warming Potentials (GWP):

Local Government Operations Protocol, For the Quantification and Reporting of Greenhouse Gas Emissions Inventories
Version 1.1, May 2010
Tables G.11, G.12 and G.14 for emission factors
Appendix E for GWP

Formula for emissions and conversion to metric tons:

Emissions = Fuel Usage (gallons) x Emission Factor (kg/gallon) x 0.001 (kg/metric ton)

Formulas for converting to CO2e:

CO2e from CO2 = CO2 Emissions (metric tons) x 1 (GWP)
CO2e from CH4 = CH4 Emissions (metric tons) x 21 (GWP)
CO2e from N2O = N2O Emissions (metric tons) x 310 (GWP)
CO2e = CO2e from CO2 + CO2e from CH4 + CO2e from N2O

Table 6. Comparison of Estimated Emissions During Construction to CEQA Thresholds of Significance USD - Standby Power System Project								
		Emissions						
Construction Scenario	Units	ROG	CO	NOx	PM10	PM2_5	SOx	CO2e
Total Project Construction	tons/project	0.057	0.094	1.435	0.054	0.054	0.0015	376
Contruction timeframe (days/project)	days/project	313	313	313	313	313	313	313
Total Project Construction	pounds/day	0.36	0.60	9.17	0.35	0.35	0.0093	2,401
CEQA Thresholds of Significance	pounds/day	54	None	54	82	54	Not listed	None
Are thresholds exceeded?		No	---	No	No	No	---	---

Equations:

Emissions (lb/day) = Emissions (tons/project) x 2000 lb/ton / days/project

Acronyms/abbreviations:

lb - pound

APPENDIX C

Air Quality Technical Appendix

for Operational Emissions

Table 1. Emissions for Criteria Pollutants During Routine Use of New Engines							
	Emission		Mechanical	Single Engine		Two Engines	
Criteria Pollutant	Factor (g/bhp-hr)	Use (hr/yr)	Output (bhp)	Emissions (g/hr)	Emissions (tons/yr)	Emissions (g/hr)	Emissions (tons/yr)
NOx + NMHC							
NOx	4.17	50	5647	23,548	1.30	47,096	2.60
NMHC	0.16	50	5647	904	0.05	1,807	0.10
CO	1.3	50	5647	7,172	0.40	14,343	0.79
PM10/PM2.5	0.07	50	5647	395	0.02	791	0.04

	Emission Factor			Electrical	Single Engine		Two Engines	
Criteria Pollutant	(lb/MMBtu)	(lb/kWh)	(g/kWh)	Output (kWh)	Emissions (g/hr)	Emissions (tons/yr)	Emissions (g/hr)	Emissions (tons/yr)
SOx	0.001515	0.0000052	0.0023	3900	9.15	0.0005	18.29	0.0010

Source of emission rates:

NOx, CO, NMHC, and PM10 were compiled from the D2 Cycle testing from the Manufacturer Spec Sheet
SOx per CARB diesel (15 ppm as S = 0.001515 lb/MMBtu per BAAQMD Permit Handbook,

Equations:

Emission Factor (lb/kWh) = Emission Factor (lb/MMBtu) x 1MMBtu/293kWh
Emission Factor (g/kWh) = Emission Factor (lb/kWh) x 453.59237g/1lb
Emissions (g/hr) = Emission Rate (g/bhp-hr) x Mechanical Output (bhp)
Emissions (g/hr) = Emission Rate (g/kWh) x Mechanical Output (kWm)
Emissions (tons/yr) = Emissions (g/hr) x 50hr/year x 1.1023E-06 tons/g

Table 2. Greenhouse Gas Estimated Emissions During Operation
Calculations Using Local Operations Protocol for Greenhouse Gas Assessment
USD - Standby Power System Project

Source	Hours of Use hr/yr	Fuel Type	Hourly Fuel Use gallons/hr	Annual Fuel Use gallons/yr	Emission Factors kg/gallon			GWP			Emissions metric tons/yr			
					CO2	CH4	N2O	CO2	CH4	N2O	CO2	CH4	N2O	CO2e
S-50	50	Diesel	274.6	13,730	10.21	5.8E-04	2.6E-04	1	21	310	140	0.0080	0.0036	141.5
S-51	50	Diesel	274.6	13,730	10.21	5.8E-04	2.6E-04	1	21	310	140	0.0080	0.0036	141.5
													Total	**283**

Source of Emission Factors and Global Warming Potentials (GWP):
Local Government Operations Protocol, For the Quantification and Reporting of Greenhouse Gas Emissions Inventories
Version 1.1, May 2010
Tables G.11 and G.14 for emission factors
Appendix E for GWP

Formula for emissions and conversion to metric tons:
Emissions = Fuel Usage (gallons/yr) x Emission Factor (kg/gallon) x 0.001 (metric ton/kg)

Formulas for converting to CO2e:
CO2e from CO2 = CO2 Emissions (metric tons) x 1 (GWP)
CO2e from CH4 = CH4 Emissions (metric tons) x 21 (GWP)
CO2e from N2O = N2O Emissions (metric tons) x 310 (GWP)
CO2e = CO2e from CO2 + CO2e from CH4 + CO2e from N2O

APPENDIX D

Biological Resource Assessment

ENVIRONMENTAL COLLABORATIVE

Consultation • Documentation • Restoration
41 Jeanette Court • Walnut Creek, CA 94596
Phone 510-393-0770 • beach127@aol.com

MEMORANDUM

TO: Mr. Paul Scheidegger
Scheidegger & Associates
201 North Civic Drive, Suite 115
Walnut Creek, California 94608

FROM: Jim Martin
ENVIRONMENTAL COLLABORATIVE

DATE: 14 January 2019

SUBJECT: Biological Resource Assessment
Union Sanitary District Standby Power Generation System Upgrade Project
Union City, California

As you requested, I have conducted a Biological Resource Assessment (BRA) of the proposed Union Sanitary District Standby Power Project (Project) at the Districts Alvarado Wastewater Treatment Plant (WWTP) in Union City, California. The WWTP is located at 5072 Benson Road, along the eastern border of the Old Alameda Creek Channel. The proposed Project is described in detail in Chapter 1, Project Description, of the Initial Study and includes construction of a new building that will house two new minimum rated 3.5 MW standby engine generators, space for two additional future 3.5 MW generators and associated electrical equipment. Two new 30,000 gallon fuel storage tanks, space for a future fuel storage tank, and a future battery storage area will be located just to the south of the generator building. A duct bank corridor will extend along the western border of the WWTP connecting the new generators to a new substation. Demolition activities include removal of the existing tank structure and associated facilities and materials from the generator building site, removal of the existing six generators and associated equipment and piping, and removal of various electrical equipment and structures within the WWTP site. **Figure 1** shows the regional location of the WWTP. **Figure 2** shows the various components of the Project and their location at the WWTP.

The environmental documentation for the Clean Water State Revolving Fund Program administered by the State Water Resources Control Board, Division of Financial Assistance, requires completion of a BRA to confirm presence or absence of any federally-listed species and to ensure compliance with the federal Endangered Species Act, the Clean Water Act, the Migratory Bird Treaty Act, and the Magnuson-Stevens Fishery Conservation and Management Act, among other legislation. This BRA has been prepared to address potential effects of the proposed improvements on biological resources, based on the results of a background information review and field reconnaissance survey. This BRA provides a description of existing conditions in the area of potential affect (APE) at the site, and an assessment of potential effects on biological and wetland resources. **Figures 3** and **4** show the APE for the entire WWTP, together with known occurrences of special-status plants and animal species, respectively, as reported from the California Natural Diversity Data Base (CNDDB) of the California Department

of Fish and Wildlife (CDFW), and designated critical habitat mapped by the U.S. Fish and Wildlife Service (USFWS). No additional field surveys are considered necessary based on the highly disturbed conditions of the APE.

SETTING

Background and Methods

Biological resources associated with the APE were identified through a review of available background information and conduct of field reconnaissance surveys. Available documentation was reviewed to provide information on general resources in the southwestern Alameda County area, presence of sensitive natural communities, and the distribution and habitat requirements of special-status species which have been recorded from or are suspected to occur in the Project vicinity. Literature review included: the occurrence records of the CNDDB; the California Native Plant Society (CNPS) *Inventory of Rare and Endangered Plants*; and a list of federally-listed and candidate species prepared by the USFWS for Project site vicinity that was prepared as part of the Digester 7 Project for the same APE encompassing the WWTP. Field reconnaissance surveys were conducted by James Martin, a biologist and principal of Environmental Collaborative, on June 15 and September 13, 2018 to determine the vegetation and wildlife resources, presence or absence of any sensitive resources such as potential jurisdictional wetlands, and the suitability of the APE to support populations of special-status species. The CNDDB, USFWS and CNPS species list are contained in **Appendix 1**.

Existing Vegetation and Wildlife Habitat Conditions

The APE has been developed with existing wastewater facilities with no remaining natural habitat. The APE is largely unvegetated, covered in pavement, structures, tanks, and graveled areas. Limited ornamental plantings of turf grass and a few scattered planted trees occur as landscaping in a few locations within the APE. Trees include a row of blackwood acacia (*Acacia melanoxylon*), coast live oak (*Quercus agrifolia*), and eucalyptus (*Eucalyptus* spp.) planted as a windbreak along the western edge of the APE, and scattered plantings of coast live oak, Chinese pistache (*Pistacia chinensis*), and pines (*Pinus* sp.) around the administration building and other locations. Ruderal (weedy) species occur in an unpaved area north of the administration building that is used for storing pipes, construction equipment, gravel, and stockpiled soil. Ruderal plant cover in this area includes: bristly ox tongue (*Picris echioides*), wild oats (*Avena fatua*), bromes (*Bromus* spp.), English plantain (*Plantago lanceolata*), field bindweed (*Convolvulus arvense*), sweet fennel (*Foeniculum vulgare*), Himalayan blackberry (*Rubus armeniacus*) and ivy (*Hedera helix*), among others.

The APE provides very little in terms of possible wildlife habitat given its developed condition, absence of vegetative cover and intensity of human disturbance. Species typical of ruderal and urban habitat occur in the vicinity, including: house finch (*Haemorhous mexicanus*), house sparrow (*Passer domesticus*), mourning dove (*Zenaida macroura*), northern mocking bird (*Mimus polyglottos*), American crow (*Corvus brachyrhynchos*), Botta's pocket gopher (*Thomomys bottae*), house mouse (*Mus musculus*), and Norway rat (*Rattus norvegicus*). Numerous rock dove (*Columba livia*) were observed congregating on the towers at the north end of the aeration basins within the WWP. No white wash, feathers, pellets or other indications of occupation by western burrowing owl (*Athene cunicularia hypugaea*) were observed anywhere within the APE during an inspection performed during the field reconnaissance surveys. Western burrowing owl is known to frequently occupy underground burrows of California ground squirrels (*Otospermophilus beecheyi*) for nesting and retreat habitat, although no ground squirrel burrows were observed within the APE. No evidence of nesting by any bird species was observed in any

of the trees in the vicinity of the APE during the field reconnaissance surveys. Netting and other bird nesting deterrents have been installed on perches and other potential nesting areas on buildings within the APE.

Special-Status Species

Special-status species are plants and animals that are legally protected under the State and/or federal Endangered Species Acts[1] or other regulations, as well as other species that are considered rare enough by the scientific community and trustee agencies to warrant special consideration, particularly with regard to protection of isolated populations, nesting or denning locations, communal roosts and other essential habitat. Species with legal protection under the Endangered Species Acts often represent major constraints to development, particularly when they are wide-ranging or highly sensitive to habitat disturbance and where proposed development would result in a "take" [2] of these species.

A record search conducted by the CNDDB, together with review of lists from the USFWS and CNPS indicates that occurrences of numerous plant and animal species with special-status have been recorded from or are suspected to occur in the southwestern Alameda County area. **Figures 3** and **4** show the known occurrences of special-status plants and animals, respectively, as mapped by the CNDDB in an approximately four mile radius of the APE. The attached lists from the CNDDB, USFWS, and CNPS (see **Appendix 1**) show the broad list of special-status plants and animals known from a wide range of habitat types found in Santa Clara and Alameda Counties, none of which contain suitable habitat any longer within in the APE due to the extent of past and on-going development and disturbance. The following provides a summary of the plant and animal species suspected to occur in the surrounding area away from the APE where natural habitat remains.

Animal Species. Based on the review of CNDDB data and the USFWS species list (see **Appendix 1**), a total of 30 special-status mammal, birds, reptiles, amphibians, fish, and invertebrate species are known or suspected to occur in the vicinity of the APE. **Table 1** located at the end of this BRA provides a summary of each of these species, their status, typical habitat characteristics, and conclusion regarding absence from the APE. Suitable habitat for all of these species is absent from the APE. This includes absence of suitable aquatic habitat for fish, absence of coastal salt marsh for many of the mammal and bird species known from the Baylands, and suitable nesting habitat for special-status bird species as well as more common bird species protected under the federal Migratory Bird Treaty Act. No evidence of any large stick nests of raptors or for other species that would also be protected under the federal Migratory Bird Treaty Act were observed in the trees that border the western edge of the APE. One grass nest that probably belonged to a house sparrow was observed in the northwest corner of the netted carport structure where vehicles are stored near the center of the APE, but

[1] The federal Endangered Species Act (FESA) of 1973 declares that all federal departments and agencies shall utilize their authority to conserve endangered and threatened plant and animal species. The California Endangered Species Act (CESA) of 1984 parallels the policies of FESA and pertains to native California species.

[2] "Take" as defined by the FESA means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect" a threatened or endangered species. "Harm" is further defined by the U.S. Fish and Wildlife Service (USFWS) to include the killing or harming of wildlife due to significant obstruction of essential behavior patterns (i.e., breeding, feeding, or sheltering) through significant habitat modification or degradation. The CDFW also considers the loss of listed species habitat as take, although this policy lacks statutory authority and case law support under the CESA.

this is presumably an old nest that predates the bird netting installed throughout the underside of the eves to the carport.

As indicated in **Table 1** marginal foraging habitat for several special-status bird species occurs in the ruderal field to the north of the administration building. This includes possible foraging by northern harrier (*Circus cyaneus*), white-tailed kite (*Elanus leucurus*), prairie falcon (*Falco mexicanus*), American peregrine falcon (*Falco peregrines anatum*), and western burrowing owl. However, the lack of vegetative cover limits the suitability of the APE for even occasional foraging by most of these species, and suitable nesting habitat is absent. The entire area was inspected for possible sign of burrowing owl (i.e. white wash, feathers, or pellets) during the field reconnaissance surveys, but no evidence was observed and occupation for nesting would be unlikely given the absence of ground squirrel burrows and frequency of vehicle and human activity in this area.

Plant Species. Based on the review of CNDDB data, the USFWS species list, and the CNPS Inventory (see **Appendix 1**), a total of 15 special-status plant species were suspected to occur in the vicinity of the APE. **Table 2** provides a summary of each of these species, their status, typical habitat characteristics, and conclusion regarding absence from the APE. These have varied status, and most are considered rare (list 1B) by the CNPS in their electronic *Inventory of Rare and Endangered Plants of California*. A few have legal protective status under the ESAs, such as the federally-endangered robust spineflower (*Chlorizanthe robusta var. robusta*), Contra Costa goldfields (*Lasthenia conjugens*), and California seablite (*Suaeda californica*). According to the CNPS Inventory, the last confirmed sighting for hairless popcornflower (*Plagiobothrys glaber*) is from 1954.

Suitable habitat for special-status plant species known from the surrounding area is absent from the APE, and none are expected to occur in the APE due to past development and on-going disturbance observed during the field reconnaissance surveys. The entire APE has been completely disturbed by past grading, installation of wastewater treatment facilities, roadways and other improvements, and on-going maintenance and other disturbance, which precludes the possibility of presence of any species-status plant species in the APE.

Jurisdictional Waters

Although definitions vary, wetlands are generally considered to be areas that are periodically or permanently inundated by surface or groundwater, and support vegetation adapted life in saturated soil. Wetlands are recognized as important features on a regional and national level due to their inherent value to fish and wildlife, use as storage areas for storm and floodwaters, and water recharge, filtration and purification functions. Jurisdiction of the U.S. Army Corps of Engineers (Corps) is established through provisions of Section 404 of the Clean Water Act, which prohibits the discharge of dredged or fill material into “waters of the U.S.” without a permit. The Regional Water Quality Control Board (RWQCB) jurisdiction is established through Section 401 of the Clean Water Act, which requires certification or waiver to control discharges in water quality whenever a Corps permit is required under Section 404 of the Clean Water Act, and State waters as regulated under the Porter-Cologne Act. Jurisdictional authority of the CDFW over wetland areas is established under Sections 1600-1607 of the State Fish and Wildlife Code, which pertains to activities that would disrupt the natural flow or alter the channel, bed or bank of any lake, river or stream.

Based on a review of the National Wetland Inventory mapping and the observations made

during the field reconnaissance surveys, there are no potential jurisdictional wetlands or regulated unvegetated “other waters of the U.S.” in the vicinity of the APE. The Old Alameda Creek channel occurs to the northwest of the APE, but is separated by a well-maintained gravel road on the top of the adjacent levee.

IMPACT ANALYSIS

Significance Criteria

Resource Category/Significance Criteria	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
BIOLOGICAL RESOURCES. Would the Project:				
1) 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?	□	X	□	□
2) 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?	□	□	□	X
3) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	□	□	□	X
4) 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?	□	□	X	□
5) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	□	□	□	X
6) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or state habitat conservation plan?	□	□	□	X

Discussion

1) **Less than Significant Impact with Mitigation Incorporated.**

Due to the extent of past development and absence of suitable habitat, no special-status species are believed to occur in the APE, and no effects are anticipated. Thus pursuant to CEQA-Plus requirements, no federally-listed species would be affected and there would be no impact relative to the federal ESA as a result of Project implementation.

No evidence of any nesting was observed in the trees in the vicinity of the APE, including burrowing owl and other raptors. The dense row of trees adjacent to the western edge of the APE provides dense screening between the WWTP and sensitive marsh habitat to the west along the Old Alameda Creek Channel. Any birds nesting in the marshlands are already acclimated to on-going activity at the WWTP, and construction-related disturbance would not result in disturbance to nesting and foraging birds given the long distance, dense screening, and acclimation.

Although the limited habitat values and extent of on-going disturbance generally precludes the potential for nesting birds in the APE, there remains a remote possibility that new bird nests could be established in the few scattered trees and other structures in the APE. If construction is initiated during the bird nesting season (February 1 – August 31) construction-related disturbance could result in abandonment of the nests if any are present in the immediate vicinity. If construction-related noise and disturbance resulted in abandonment of a nest in active use and loss of any eggs or young in the nest, this would be a significant adverse impact and violation of the federal Migratory Bird Treaty Act and State Fish and Game Code sections. The mitigation measure below would serve to avoid this potential for violation of federal and state regulations conducting a preconstruction survey and implementing appropriate construction restrictions if any active nests are encountered until any young birds have successfully fledged.

Mitigation Measure BIO-1. *Adequate measures shall be taken to avoid inadvertent take of bird nests protected under the federal Migratory Bird Treaty Act and State Fish and Game Code when in active use. This shall be accomplished by taking the following steps.*

- *If initial construction is proposed during the nesting season (February 1 to August 31), a focused survey for nesting raptors and other migratory birds shall be conducted by a qualified biologist within 7 days prior to the onset of construction in order to determine whether any active nests are present in the APE and surrounding area within 100 feet of proposed construction. The survey shall be reconducted any time construction has been delayed or curtailed for more than 7 days during the nesting season.*
- *If no active nests are identified during the construction survey period, or development is initiated during the non-breeding season (September 1 to January 31), construction may proceed with no restrictions.*
- *If bird nests are found, an adequate setback shall be established around the nest location and construction activities restricted within this no-disturbance zone until the qualified biologist has confirmed that any young birds have fledged and are able to function outside the nest location. Required setback distances for the no-disturbance zone shall be based on input received from the CDFW, and may vary depending on species and sensitivity to disturbance. As necessary, the no-disturbance zone shall be fenced with temporary orange construction fencing if construction is to be initiated elsewhere in the APE.*
- *A report of findings shall be prepared by the qualified biologist and submitted to the District for review and approval prior to initiation of construction during the nesting season (February 1 to August 31). The report shall either confirm absence of any active nests or should confirm that any young are located within a designated no-disturbance*

zone and construction can proceed. No report of findings is required if construction is initiated during the non-nesting season (September 1 to January 31) and continues uninterrupted according to the above criteria.

Implementation of this mitigation measure would ensure that impacts on special-status species would be less-than-significant.

2) **No Impact.**

The APE does not contain any riparian habitat or other sensitive natural community types, and no effects are anticipated.

3) **No Impact.**

The APE does not contain any federally protected wetlands and no effects are anticipated. Thus, pursuant to CEQA-Plus requirements, the Project is consistent with Executive Order 11990 – Protection of Wetlands. Because California does not have a Coastal Barriers Resources System, no impacts relative to the Coastal Barriers Resources Act will occur.

4) **Less than Significant Impact.**

The proposed Project would not have any significant adverse impacts on wildlife movement opportunities or adversely impact native wildlife nursery sites. Wildlife in the vicinity of the APE are already acclimated to human activity at the WWTP, and construction-related disturbance would not cause any significant impacts on possible bird nesting in the surrounding area. Species that utilize the surrounding area for foraging and nesting would continue to use these areas, even during construction, given the long distance, dense screening, and acclimation to human disturbance at the WWTP.

Pursuant to CEQA-Plus requirements, no essential fish habitat would be affected and the Project is consistent with the Magnuson-Stevens Fishery Conservation and Management Act.

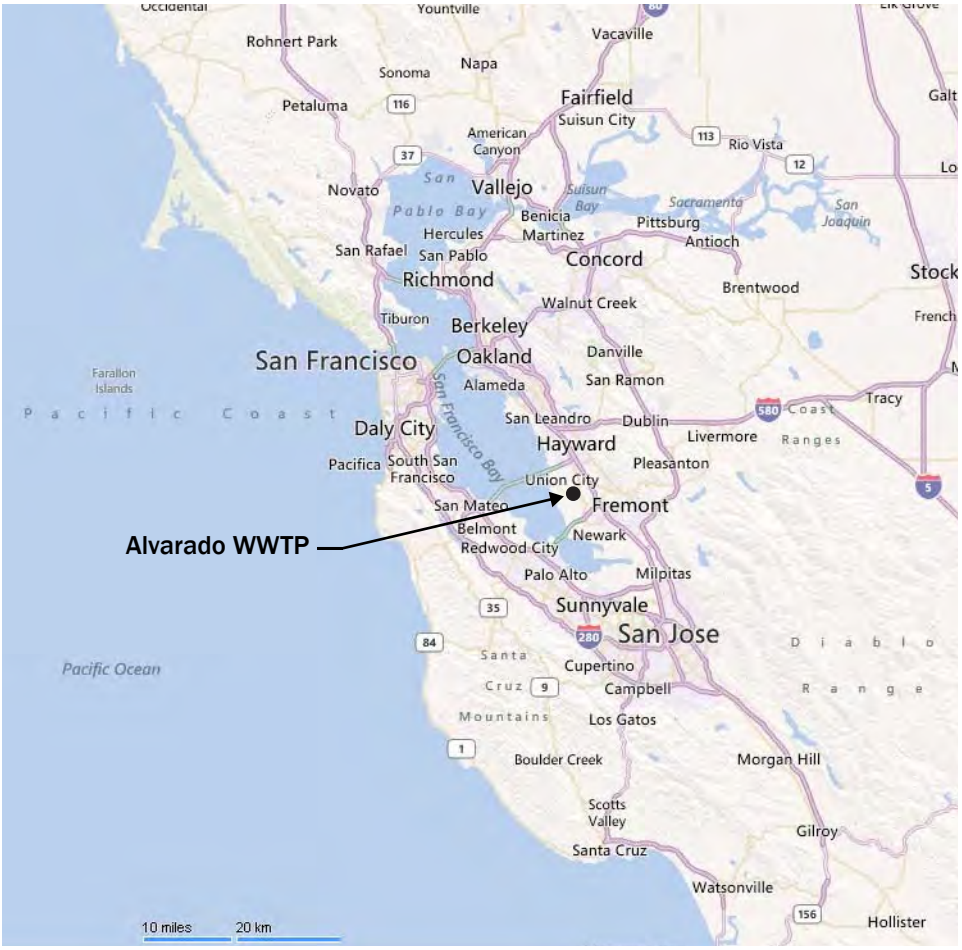
5) **No Impact.**

Goals and policies specified in the Union City General Plan address the protection of sensitive biological and wetland resources. There are no sensitive resources in the vicinity of the APE and no conflicts with the City's General Plan are anticipated as a result of Project implementation.

No trees are proposed for removal as part of the Project. Section 12.16.170, Tree Conservation of the Union City Municipal Code addresses the protection of trees of regulated size. As defined by code, protected trees include all trees which have a twelve-inch or greater circumference of any trunk and are located on commercial, office or industrial developed property. The City's code requires a Tree Permit for the removal of any tree of regulated size.

6) **No Impact.**

No habitat conservation plans have been prepared addressing the APE, and the Project would therefore not conflict with any adopted habitat conservation plans. As a result, no impact would occur.



Source: Microsoft, Bing Maps

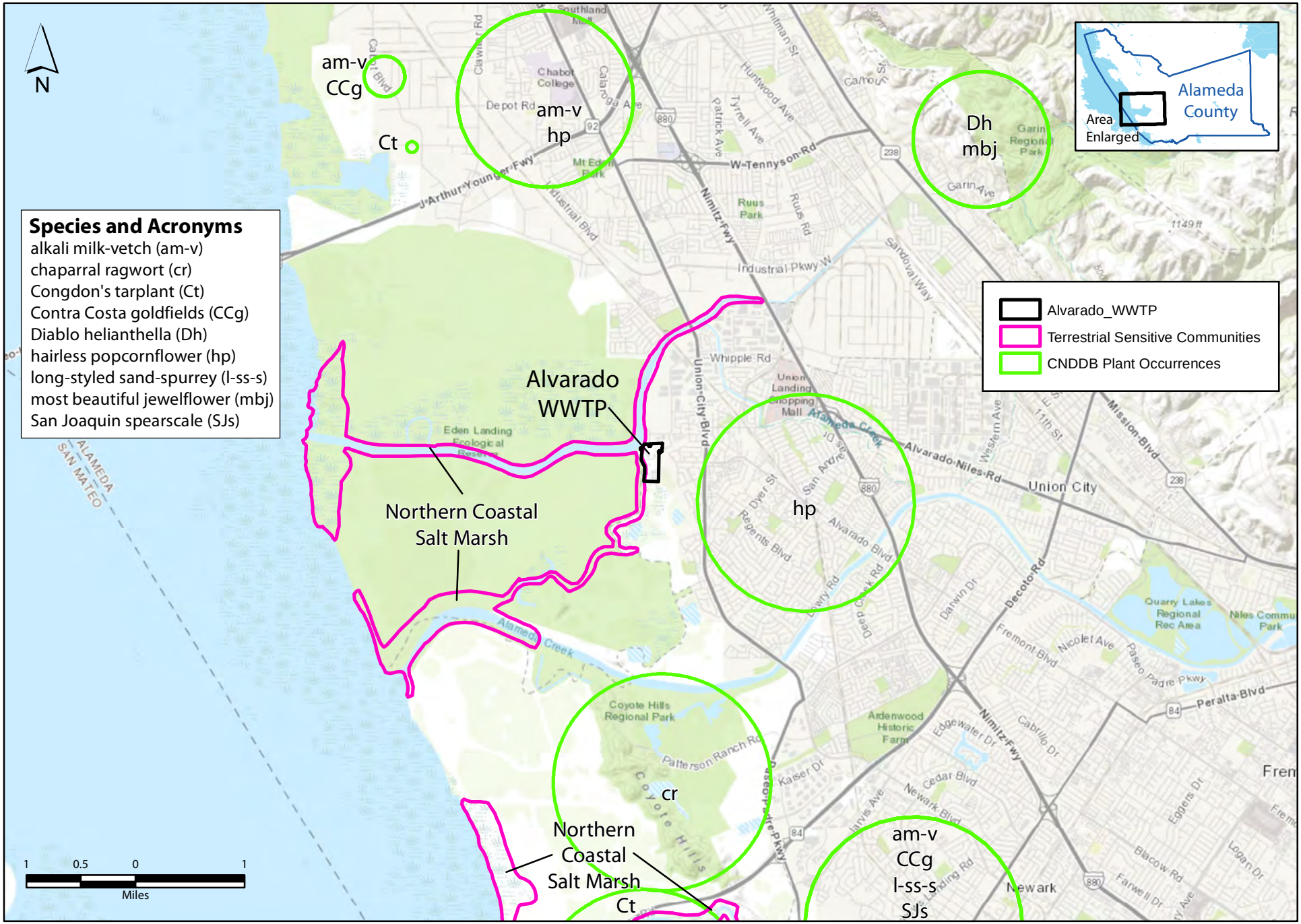
Figure 1. Regional Location of the Alvarado WWTP

Source: Brown and Caldwell, November 2018

Figure 2. Construction Characteristics of Standby Power Generation System Upgrade Project

Figure 3. Special-Status Plants and Sensitive Natural Communities

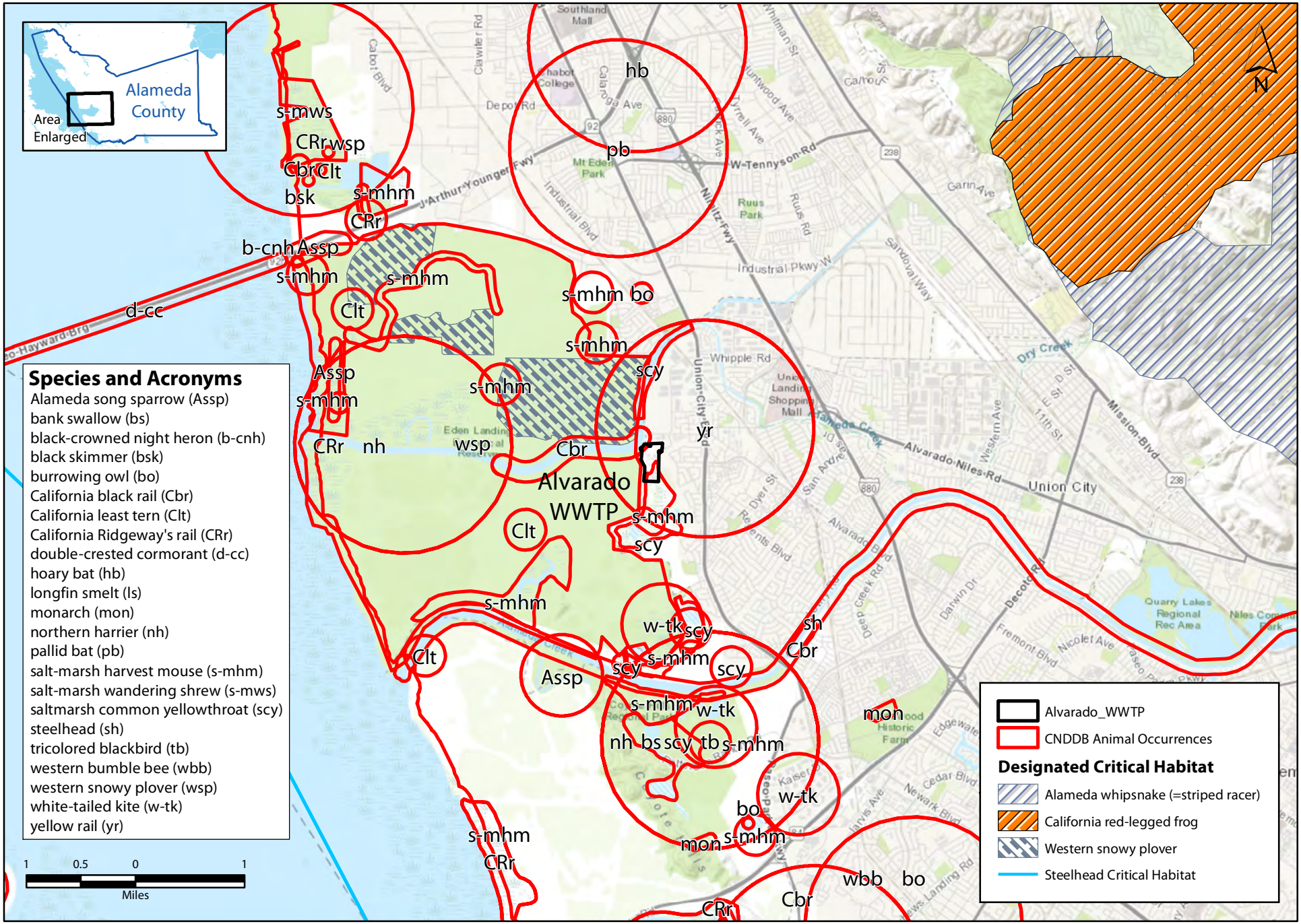
USD Standby Power Project



SOURCES: California Natural Diversity Database accessed on Sept 6, 2018; USFW Critical Habitat Database accessed in July 27, 2018 (latest version); USGS base map by ESRI and NGS. Map produced by www.digitalmappingsolutions.com on 11/29/2018.

Figure 4. Special-Status Animals and Critical Habitat

USD Standby Power Project



SOURCES: California Natural Diversity Database accessed on Sept 6, 2018; USFW Critical Habitat Database accessed in July 27, 2018 (latest version); USGS base map by ESRI and NGS. Map produced by www.digitalmappingsolutions.com on 11/29/2018.

TABLE 1
SPECIAL-STATUS ANIMAL SPECIES WITH POTENTIAL TO OCCUR IN APE VICINITY

Scientific and Common Names	Status Federal/State	Geographic Distribution	Habitat Requirements	Potential Occurrence in APE
Invertebrates				
Branchinecta conservatio Conservancy fairy shrimp	E/--	Disjunct occurrences in Solano, Merced, Tehama, Ventura, Butte, and Glenn Counties	Large, deep vernal pools in annual grasslands	None—project area is outside of the species' known range.
Callophrys mossii bayensis San Bruno elfin butterfly	E/--	Restricted to a few small populations on San Francisco Peninsula, with largest occurring on San Bruno Mountain.	Associated with specific broadleaf stonecrop host plants in coastal scrub habitat.	None—no suitable habitat or larval host plant in APE.
Euphydryas editha bayensis Bay checkerspot butterfly	T/--	Disjunct occurrences in San Mateo and Santa Clara Counties.	Associated with specific host plants that typically grow on serpentine soils.	None—no suitable habitat, as there are no serpentine soils in APE.
Lepidurus packardi Vernal pool tadpole shrimp	E/--	Shasta County south to Merced County.	Vernal pools and ephemeral stock ponds.	None—no suitable wetland habitat within APE.
Fish				
Hypomesus transpacificus Delta smelt	T/T	Primarily in the Sacramento–San Joaquin Estuary, but has been found as far upstream as the mouth of the American River on the Sacramento River and Mossdale on the San Joaquin River; range extends downstream to San Pablo Bay.	Occurs in estuary habitat in the Delta where fresh and brackish water mix in the salinity range of 2–7 parts per thousand.	None – outside of known range and there is no suitable habitat in APE.
Oncorhynchus mykiss Central California coast steelhead	T/--	Coastal drainages along the central California coast.	Cold, clear water with clean gravel of appropriate size for spawning. Most spawning occurs in headwater streams. Steelhead migrate to the ocean to feed and grow until sexually mature.	None – there is no suitable habitat in APE.
Oncorhynchus mykiss Central Valley steelhead	T/--	Sacramento and San Joaquin River and their tributaries.	Occurs in well-oxygenated, cool, riverine habitat with water temperatures from 7.8 to 18°C (Moyle 2002). Habitat types are riffles, runs, and pools.	None – there is no suitable habitat in APE.
Spirinchus thaleichthys Longfin smelt	C/T	San Francisco Bay-Delta north to the Cook Inlet in Alaska	Pelagic portions of estuaries.	None – there is no suitable habitat in APE.

TABLE 1 (CONTINUED)
SPECIAL-STATUS ANIMAL SPECIES WITH POTENTIAL TO OCCUR IN APE VICINITY

Scientific and Common Names	Status Federal/State	Geographic Distribution	Habitat Requirements	Potential Occurrence in Project Area
Amphibians				
Ambystoma californiense California tiger salamander	T/T	Central Valley, including Sierra Nevada foothills, up to approximately 1,000 feet, and coastal region from Sonoma County south to Santa Barbara County	Small ponds, lakes, or vernal pools in grasslands and oak woodlands for larvae; rodent burrows, rock crevices, or fallen logs for cover for adults and for summer dormancy.	None – there is no suitable habitat in APE.
Rana draytonii California red-legged frog	T/SSC	Found along the coast and coastal mountain ranges of California from Mendocino County to San Diego County and in the Sierra Nevada from Butte County to Stanislaus County.	Permanent and semipermanent aquatic habitats, such as creeks and cold-water ponds, with emergent and submergent vegetation; may aestivate in rodent burrows or cracks during dry periods	None – there is no suitable habitat in APE.
Reptiles				
Emys marmorata Western pond turtle	–/SSC	The western pond turtle is uncommon to common in suitable aquatic habitat throughout California, west of the Sierra-Cascade crest and absent from desert regions, except in the Mojave Desert along the Mojave River and its tributaries.	Occupies ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms and with watercress, cattails, water lilies, or other aquatic vegetation in woodlands, grasslands, and open forests. Nests are typically constructed in upland habitat within 0.25 mile of aquatic habitat.	None – there is no suitable habitat in APE.
Masticophis lateralis euryxanthus Alameda whipsnake	T/T	Restricted to Alameda and Contra Costa Counties; fragmented into 5 disjunct populations throughout its range	Valleys, foothills, and low mountains associated with northern coastal scrub or chaparral habitat; requires rock outcrops for cover and foraging	None - There is currently no potential for Alameda whipsnake to occur in APE as there is no suitable habitat.
Mammals				
Reithrodontomys raviventris Salt marsh harvest mouse	E/E	The San Francisco Bay Estuary and Suisun Marsh.	Saline to brackish salt marsh habitat.	None – there is no suitable habitat in APE.
Sorex vagrans halicoetes Salt-marsh wandering shrew	-/SSC	Southern arm of the San Francisco Bay in San Mateo, Santa Clara, Alameda, and Contra Costa Counties.	Salt marshes from 6 to 9 feet above MSL.	None – there is no suitable habitat in APE.

TABLE 1
SPECIAL-STATUS ANIMAL SPECIES WITH POTENTIAL TO OCCUR IN APE VICINITY

Scientific and Common Names	Status Federal/State	Geographic Distribution	Habitat Requirements	Potential Occurrence in APE
Vulpes macrotis mutica San Joaquin kit fox	E/T	Principally occurs in the San Joaquin Valley and adjacent open foothills to the west; recent records from 17 counties extending from Kern County north to Contra Costa County	Saltbush scrub, grassland, oak, savanna, and freshwater scrub	None – outside of known range and there is no suitable habitat in APE.
Birds				
Agelaius tricolor Tricolored blackbird	–/SSC	Permanent resident in the Central Valley from Butte County to Kern County. Breeds at scattered coastal locations from Marin County south to San Diego County; and at scattered locations in Lake, Sonoma, and Solano Counties. Rare nester in Siskiyou, Modoc, and Lassen Counties	Nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland sites with blackberries, nettles, thistles, and grainfields. Habitat must be large enough to support 50 pairs. Probably requires water at or near the nesting colony	None – there is no suitable habitat in APE.
Aquila chrysaetos Golden eagle	PR/ FP	Foothills and mountains throughout California. Uncommon non-breeding visitor to lowlands such as the Central Valley	Nest on cliffs and escarpments or in tall trees overlooking open country. Forages in annual grasslands, chaparral, and oak woodlands with plentiful medium and large-sized mammals	Low (foraging only) – golden eagle has the potential to forage within the marshlands to the south and west of APE. Since there is no nesting habitat within APE and no foraging habitat would be affected, no effects on this species are expected to occur.
Ardea herodias Great blue heron (rookery)	–/–	Nests in suitable habitat throughout California except at higher elevations in Sierra Nevada and Cascade mountain ranges.	Widely distributed in freshwater and calm-water intertidal habitats.	None – there is no suitable habitat in APE and no evidence of roosting in trees on western edge of APE.
Athene cunicularia hypugaea Western burrowing owl	–/SSC	Lowlands throughout California, including the Central Valley, northeastern plateau, southeastern deserts, and coastal areas; rare along south coast	Level, open, dry, heavily grazed or low stature grassland or desert vegetation with available burrows	Low – western burrowing owl is known to occur in the grasslands north of APE. No evidence of burrowing owl in limited ruderal cover within APE.
Charadrius alexandrines nivosus Western snowy plover	T/SSC	Population defined as those birds that nest adjacent to or near tidal waters, including all nests along the mainland coast, peninsulas, offshore islands, and adjacent bays and estuaries. Twenty breeding sites are known in California from Del Norte to Diego County	Coastal beaches above the normal high tide limit in flat, open areas with sandy or saline substrates; vegetation and driftwood are usually sparse or absent	None – there is no suitable habitat in APE.

TABLE 1
SPECIAL-STATUS ANIMAL SPECIES WITH POTENTIAL TO OCCUR IN APE VICINITY

Scientific and Common Names	Status Federal/State	Geographic Distribution	Habitat Requirements	Potential Occurrence in APE
Circus cyaneus Northern harrier	–/SSC	Occurs throughout lowland California. Has been recorded in fall at high elevations	Grasslands, meadows, marshes, and seasonal and agricultural wetlands	Low (foraging only) – limited foraging opportunities in small area of ruderal cover within APE, Since no nesting habitat within APE and no foraging habitat would be affected, no effects on this species are expected to occur.
Elanus leucurus White-tailed kite	–/FP	Lowland areas west of Sierra Nevada from the head of the Sacramento Valley south, including coastal valleys and foothills to western San Diego County at the Mexico border.	Low foothills or valley areas with valley or live oaks, riparian areas, and marshes near open grasslands for foraging	Low (foraging only) - limited foraging opportunities in small area of ruderal cover within APE, Since no nesting habitat within APE and no foraging habitat would be affected, no effects on this species are expected to occur.
Falco mexicanus Prairie falcon	–/–	Permanent resident in the south Coast, Transverse, Peninsular, and northern Cascade Ranges, the southeastern deserts, Inyo-White Mountains, foothills surrounding the Central Valley, and in the Sierra Nevada in Modoc, Lassen, and Plumas Counties. Winters in the Central Valley, along the coast from Santa Barbara County to San Diego County, and in Marin,	Nests on cliffs or escarpments, usually overlooking dry, open terrain or uplands	Low (foraging only) – limited foraging opportunities in small area of ruderal cover within APE, Since no nesting habitat within APE and no foraging habitat would be affected, no effects on this species are expected to occur.
Falco peregrines anatum American peregrine falcon	–/E, FP	Permanent resident along the north and south Coast Ranges. May summer in the Cascade and Klamath Ranges and through the Sierra Nevada to Madera County. Winters in the Central Valley south through the Transverse and Peninsular Ranges and the plains east of the Cascade Range	Nests and roosts on protected ledges of high cliffs, usually adjacent to lakes, rivers, or marshes that support large prey populations	Low (foraging only) – limited foraging opportunities in small area of ruderal cover within APE, Since no nesting habitat within APE and no foraging habitat would be affected, no effects on this species are expected to occur.
Geothlypis trichas sinuosa Saltmarsh common yellowthroat	–/SSC	Found only in the San Francisco Bay Area in Marin, Napa, Sonoma, Solano, San Francisco, San Mateo, Santa Clara, and Alameda Counties	Freshwater marshes in summer and salt or brackish marshes in fall and winter; requires tall grasses, tules, and willow thickets for nesting and cover	None – there is no suitable habitat in APE.
Laterallus jamaicensis coturniculus California black rail	–/T, FP	Found in scattered parts of North America and the Pacific region of South America	Usually in coastal salt marshes but also freshwater marshes.	None – there is no suitable habitat in APE.

TABLE 1
SPECIAL-STATUS ANIMAL SPECIES WITH POTENTIAL TO OCCUR IN APE VICINITY

Scientific and Common Names	Status Federal/State	Geographic Distribution	Habitat Requirements	Potential Occurrence in APE
Melospiza melodia pusillula Alameda song sparrow	–/SSC	Found only in marshes along the southern portion of the San Francisco Bay	Brackish marshes associated with pickleweed; may nest in tall vegetation or among the pickleweed	None – there is no suitable habitat in APE.
Pelecanus occidentalis californicus California brown pelican	D/E	The Pacific coast from Canada through Mexico.	Coastal areas. Nests on islands. Occasionally along Arizona's lakes and rivers.	None – there is no suitable habitat in APE.
Rallus longirostris obsoletus California clapper rail	E/FP	Found along the Pacific Coast in Monterey and San Luis Obispo Counties.	From tidal mudflats to tidal sloughs	None – there is no suitable habitat in APE.
Sternula antillarum browni California least tern	E/E	Found along the Pacific Coast of California from San Francisco to Baja California	Nest on open beaches kept free of vegetation by natural scouring from tidal action	None – there is no suitable habitat in APE.

Notes:

Status explanations:

Federal

E	=	listed as endangered under the ESA
T	=	listed as threatened under the ESA
PT	=	proposed for federal listing as threatened under the ESA
C	=	species for which USFWS has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list, but issuance of the proposed rule is precluded
D	=	delisted
SC	=	species of concern
–	=	no listing

State

E	=	listed as endangered under CESA
T	=	listed as threatened under CESA
FP	=	fully protected under the California Fish and Game Code
SSC	=	species of special concern in California
D	=	delisted
–	=	no listing

Potential Occurrence in the Study Area

High:	Known occurrences of the species within APE, or CNDDB, or other documents, records the occurrence of the species within a 2-mile radius of APE and suitable habitat is present
Moderate:	CNDDB, or other documents, records the known occurrence of the species within a 2-mile radius of APE and poor quality suitable habitat is present
Low:	CNDDB, or other documents, does not record the occurrence of the species within a 2-mile radius of APE but suitable habitat is present in vicinity

TABLE 2
SPECIAL-STATUS PLANT SPECIES WITH POTENTIAL TO OCCUR IN REGION OF APE

Scientific and Common Names	Status Federal/State/ CNPS	Geographic Distribution	Habitat Requirements	Potential Occurrence in Project Area
Astragalus tener var. tener Alkali milk-vetch	–/–/1B.2	Southern Sacramento Valley, northern San Joaquin Valley, east San Francisco Bay Area	Alkali playas, on adobe clay in valley and foothill grassland, vernal pools on alkaline soils; below 60 meters above MSL	None - there is no suitable habitat within APE. Additionally, APE has been heavily disturbed (vehicle traffic, construction of existing facilities) and continually disturbed by maintenance activities.
Atriplex depressa Brittlescale	–/–/1B.2	Western and eastern Central Valley and adjacent foothills on west side of Central Valley	Alkaline clay soils in chenopod scrub, playas, valley and foothill grasslands, meadows and seeps and vernal pools on alkaline, clay soils; below 320 meters above MSL	None - there is no suitable habitat within APE. Additionally, APE has been heavily disturbed (vehicle traffic, construction of existing facilities) and continually disturbed by maintenance activities.
Atriplex joaquiniana San Joaquin spearscale	–/–/1B.2	West edge of Central Valley from Glenn County to Tulare County. Also reported from Monterey and San Luis Obispo Counties	Alkaline soils in chenopod scrub, meadows and seeps, playas, valley and foothill grassland; below 835 meters above MSL	None - there is no suitable habitat within APE. Additionally, APE has been heavily disturbed (vehicle traffic, construction of existing facilities) and continually disturbed by maintenance activities.
Atriplex minuscula Lesser saltscale	–/–/1B.1	Sacramento and San Joaquin Valley, Butte County and from Merced County to Kern County. Also recorded from Don Edwards NWR in Alameda County.	Sandy alkaline soils in chenopod scrub, playas, valley and foothill grassland; 15-200 meters above MSL	None - there is no suitable habitat within APE. Additionally, APE has been heavily disturbed (vehicle traffic, construction of existing facilities) and continually disturbed by maintenance activities.

TABLE 2
SPECIAL-STATUS PLANT SPECIES WITH POTENTIAL TO OCCUR IN REGION OF APE

Scientific and Common Names	Status Federal/State/ CNPS	Geographic Distribution	Habitat Requirements	Potential Occurrence in Project Area
Centromadia parryi ssp. congdonii Congdon's tarplant	–/–/1B.2	East San Francisco Bay Area, Salinas Valley, Los Osos Valley	Alkaline soils in annual grassland, on lower slopes, flats, and swales, sometimes on saline soils; below 230 meters above MSL	None - there is no suitable habitat within APE. Additionally, APE has been heavily disturbed (vehicle traffic, construction of existing facilities) and continually disturbed by maintenance activities.
Chlorizanthe robusta var. robusta Robust spineflower	E/–/1B.1	Coastal central California, from San Mateo to Monterey County	Coastal bluff scrub, coastal dunes openings in cismontane woodland, on sandy soil	None - there is no suitable habitat within APE. Additionally, APE has been heavily disturbed (vehicle traffic, construction of existing facilities) and continually disturbed by maintenance activities.
Chloropyron maritimum ssp. palustre (Cordylanthus maritimus ssp. palustris) Point Reyes bird's-beak	–/–/1B.2	Coastal northern California, from Humboldt to Santa Clara County	Coastal salt marsh, tidal salt marsh; below 10 meters above MSL	None - there is no suitable habitat within APE. Additionally, APE has been heavily disturbed (vehicle traffic, construction of existing facilities) and continually disturbed by maintenance activities.
Eryngium aristulatum var. hooveri Hoover's button-celery	–/–/1B.1	South San Francisco Bay area, South Coast Ranges in Alameda, San Benito, Santa Clara, and San Luis Obispo Counties	Vernal pools; 3-45 meters above MSL	None - there is no suitable habitat within APE. Additionally, APE has been heavily disturbed (vehicle traffic, construction of existing facilities) and continually disturbed by maintenance activities.

TABLE 2
SPECIAL-STATUS PLANT SPECIES WITH POTENTIAL TO OCCUR IN REGION OF APE

Scientific and Common Names	Status Federal/State/ CNPS	Geographic Distribution	Habitat Requirements	Potential Occurrence in Project Area
Lasthenia conjugens Contra Costa goldfields	E/–/1B.1	Scattered occurrences in Coast Range valleys and southwest edge of Sacramento Valley, Alameda, Contra Costa, Monterey, Marin, Napa, Solano and Sonoma Counties. Presumed extirpated in Mendocino, Santa Barbara and Santa Clara Counties	Wet areas in cismontane woodland, valley and foothill grassland, vernal pools, alkaline playas or saline vernal pools and swales; seasonal wetlands below 470 meters above MSL	None - there is no suitable habitat within APE. Additionally, APE has been heavily disturbed (vehicle traffic, construction of existing facilities) and continually disturbed by maintenance activities.
Malacothamnus acruatus Acruate bush mallow	–/–/1B.2	Santa Clara, Santa Cruz, and San Mateo Counties	Chaparral, between 15-355 meters above MSL	None - there is no suitable habitat within APE. Additionally, APE has been heavily disturbed (vehicle traffic, construction of existing facilities) and continually disturbed by maintenance activities.
Malacothamnus hallii Hall's bush mallow	–/–/1B.2	Alameda, Contra Costa, Merced, Santa Clara, and Stanislaus Counties	Chaparral and coastal scrub between 30-2,500'	None - there is no suitable habitat within APE. Additionally, APE has been heavily disturbed (vehicle traffic, construction of existing facilities) and continually disturbed by maintenance activities.
Navarretia prostrata Prostrate vernal pool navarretia	–/–/1B.1	Western San Joaquin Valley, interior South Coast Ranges, central South Coast, Peninsular Ranges: Alameda, Los Angeles, Merced, Monterey, Orange, Riverside, San Diego, and San Luis Obispo Counties.	Vernal pools and mesic areas in coastal scrub and alkali grasslands, seasonal wetlands in alkaline soils; between 15-700 meters above MSL	None - there is no suitable habitat within APE. Additionally, APE has been heavily disturbed (vehicle traffic, construction of existing facilities) and continually disturbed by maintenance activities.

TABLE 2
SPECIAL-STATUS PLANT SPECIES WITH POTENTIAL TO OCCUR IN REGION OF APE

Scientific and Common Names	Status Federal/State/ CNPS	Geographic Distribution	Habitat Requirements	Potential Occurrence in Project Area
Plagiobothrys glaber	–/–/1A	Alameda, Marin, San Benito, Santa Clara Counties	Alkaline meadows and seeps, and coastal salt marsh; between 15-180 meters above MSL Last confirmed sighting in 1954.	None - there is no suitable habitat within APE. Additionally, APE has been heavily disturbed (vehicle traffic, construction of existing facilities) and continually disturbed by maintenance activities.
Suaeda californica California seablite	E/–/1B.1	Morro Bay, San Luis Obispo County, and San Francisco and Contra Costa Counties; historically found in the south San Francisco Bay.	Margins of tidal salt marsh; below 15 meters above MSL	None; there is no suitable habitat within the project area. Additionally, the project area has been heavily disturbed (vehicle traffic, construction of existing facilities) in 2007 and earlier, and continually disturbed by maintenance activities (e.g., mowing).
Trifolium hydrophilum (*T. depauperatum var. hydrophilum*) Saline clover	–/–/1B.2	Sacramento Valley, central western California.	Salt marsh, mesic alkaline areas in Valley and foothill grasslands, vernal pools, marshes and swamps; below 300 meters above MSL	None; there is no suitable habitat within the project area. Additionally, the project area has been heavily disturbed (vehicle traffic, construction of existing facilities) in 2007 and earlier, and continually disturbed by maintenance activities (e.g., mowing).

TABLE 2
SPECIAL-STATUS PLANT SPECIES WITH POTENTIAL TO OCCUR IN REGION OF APE

Scientific and Common Names	Status Federal/State/ CNPS	Geographic Distribution	Habitat Requirements	Potential Occurrence in Project Area

Notes:

Status explanations:

Federal

E = listed as endangered under the ESA
T = listed as threatened under the ESA
– = no listing

State

E = listed as endangered under CESA
T = listed as threatened under CESA
– = no listing

CNPS

1A – presumed extinct in California
1B.1 –rare, threatened or endangered in California and elsewhere; seriously threatened in California
1B.2 – rare, threatened or endangered in California and elsewhere; fairly threatened in California

Potential Occurrence in the Study Area

High: Known occurrences of the species within the APE, or CNDDB, or other documents, records the occurrence of the species within a 2-mile radius of APE and suitable habitat is present within APE
Moderate: CNDDB, or other documents, records the known occurrence of the species within a 2-mile radius of APE and suitable habitat is present
Low: CNDDB, or other documents, may record the occurrence of the species within a 2-mile radius of APE, but only marginal or poor quality suitable habitat is present, or species is believed to be extirpated from vicinity of APE

APPENDIX 1

Species Lists from USFWS, CNDDB and CNPS

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To: October 02, 2018
Consultation Code: 08ESMF00-2019-SLI-0008
Event Code: 08ESMF00-2019-E-00018
Project Name: Union Sanitary District Digester 7 Project

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

San Francisco Bay-Delta Fish And Wildlife
650 Capitol Mall
Suite 8-300
Sacramento, CA 95814
(916) 930-5603

Project Summary

Consultation Code: 08ESMF00-2019-SLI-0008

Event Code: 08ESMF00-2019-E-00018

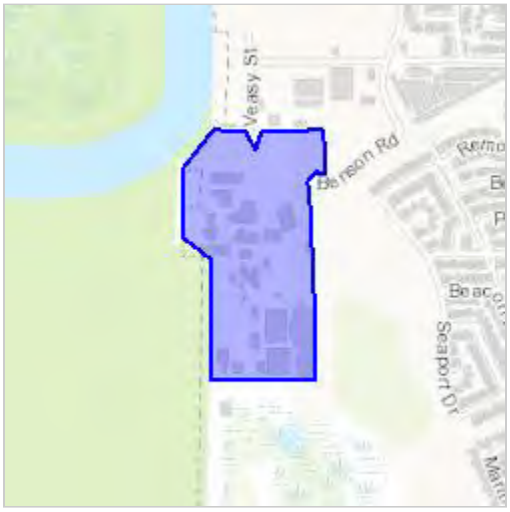
Project Name: Union Sanitary District Digester 7 Project

Project Type: Federal Grant / Loan Related

Project Description: The new Digester 7 Project and related facility upgrades will be located on the Union Sanitary District Alvarado Wastewater Treatment Plan at 5072 Benson Road in Union City, California. Digester 7 is being designed as a 1.8 MG tank.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/37.59164684837418N122.09011275398737W



Counties: Alameda, CA

Endangered Species Act Species

There is a total of 12 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Salt Marsh Harvest Mouse *Reithrodontomys raviventris* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/613	Endangered

Birds

NAME	STATUS
California Clapper Rail *Rallus longirostris obsoletus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4240	Endangered
California Least Tern *Sterna antillarum browni* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8104	Endangered
Western Snowy Plover *Charadrius nivosus nivosus* Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened

Reptiles

NAME	STATUS
Alameda Whipsnake (=striped Racer) *Masticophis lateralis euryxanthus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5524	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander *Ambystoma californiense* Population: U.S.A. (Central CA DPS) There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
San Bruno Elfin Butterfly *Callophrys mossii bayensis* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3394	Endangered

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp *Lepidurus packardi* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

Flowering Plants

NAME	STATUS
Contra Costa Goldfields *Lasthenia conjugens*	Endangered

There is **final** critical habitat for this species. Your location is outside the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/7058

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Newark (3712251) OR Redwood Point (3712252) OR San Leandro (3712262) OR Hayward (3712261))

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Accipiter cooperii Cooper's hawk	G5 S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	950 950	115 S:1	0	0	0	0	0	1	0	1	1	0	0
Accipiter striatus sharp-shinned hawk	G5 S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	1,180 1,180	22 S:1	1	0	0	0	0	0	1	0	1	0	0
Agelaius tricolor tricolored blackbird	G2G3 S1S2	None Candidate Endangered	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_EN-Endangered NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	5 21	951 S:2	0	0	0	0	1	1	2	0	1	1	0
Ambystoma californiense California tiger salamander	G2G3 S2S3	Threatened Threatened	CDFW_WL-Watch List IUCN_VU-Vulnerable	20 20	1176 S:1	0	0	0	0	1	0	1	0	0	0	1
Amsinckia lunaris bent-flowered fiddleneck	G3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	892 892	86 S:1	0	0	0	0	0	1	0	1	1	0	0
Antrozous pallidus pallid bat	G5 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive WBWG_H-High Priority	30 110	415 S:2	0	0	0	0	0	2	2	0	2	0	0
Aquila chrysaetos golden eagle	G5 S3	None None	BLM_S-Sensitive CDF_S-Sensitive CDFW_FP-Fully Protected CDFW_WL-Watch List IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	950 950	320 S:1	1	0	0	0	0	0	1	0	1	0	0
Ardea herodias great blue heron	G5 S4	None None	CDF_S-Sensitive IUCN_LC-Least Concern	1 300	155 S:2	1	1	0	0	0	0	1	1	2	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Asio flammeus short-eared owl	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern		10 S:1	0	0	0	0	0	1	1	0	1	0	0
Astragalus tener var. tener alkali milk-vetch	G2T2 S2	None None	Rare Plant Rank - 1B.2	5 70	65 S:6	0	0	0	0	6	0	6	0	0	3	3
Athene cunicularia burrowing owl	G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	2 60	1971 S:8	0	3	1	0	2	2	6	2	6	2	0
Balsamorhiza macrolepis big-scale balsamroot	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive USFS_S-Sensitive	500 500	50 S:2	1	0	0	0	0	1	1	1	2	0	0
Bombus crotchii Crotch bumble bee	G3G4 S1S2	None None		700 700	234 S:1	0	0	0	0	0	1	1	0	1	0	0
Bombus occidentalis western bumble bee	G2G3 S1	None None	USFS_S-Sensitive XERCES_IM-Imperiled	10 100	282 S:4	0	0	0	0	0	4	4	0	4	0	0
Centromadia parryi ssp. congdonii Congdon's tarplant	G3T2 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_RSABG-Rancho Santa Ana Botanic Garden	5 40	93 S:5	0	0	1	1	1	2	3	2	4	0	1
Charadrius alexandrinus nivosus western snowy plover	G3T3 S2S3	Threatened None	CDFW_SSC-Species of Special Concern NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	0 15	138 S:9	1	0	0	0	1	7	6	3	8	1	0
Chloropyron maritimum ssp. palustre Point Reyes salty bird's-beak	G4?T2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	5 5	68 S:3	0	0	0	0	3	0	3	0	0	3	0
Chorizanthe robusta var. robusta robust spineflower	G2T1 S1	Endangered None	Rare Plant Rank - 1B.1 BLM_S-Sensitive	30 30	20 S:1	0	0	0	0	1	0	1	0	0	1	0
Circus cyaneus northern harrier	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	5 10	53 S:5	0	1	0	0	0	4	4	1	5	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Coturnicops noveboracensis yellow rail	G4 S1S2	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern NABCI_RWL-Red Watch List USFS_S-Sensitive USFWS_BCC-Birds of Conservation Concern	0 20	45 S:4	0	0	0	0	0	4	3	1	4	0	0
Danaus plexippus pop. 1 monarch - California overwintering population	G4T2T3 S2S3	None None	USFS_S-Sensitive	5 150	383 S:7	0	2	2	0	0	3	0	7	7	0	0
Dipodomys venustus venustus Santa Cruz kangaroo rat	G4T1 S1	None None		5 5	14 S:1	0	0	0	0	0	1	1	0	1	0	0
Elanus leucurus white-tailed kite	G5 S3S4	None None	BLM_S-Sensitive CDFW_FP-Fully Protected IUCN_LC-Least Concern	5 10	176 S:6	0	0	0	0	0	6	6	0	6	0	0
Eryngium aristulatum var. hooveri Hoover's button-celery	G5T1 S1	None None	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden	10 10	16 S:1	0	0	1	0	0	0	0	1	1	0	0
Eryngium jepsonii Jepson's coyote-thistle	G2 S2	None None	Rare Plant Rank - 1B.2	330 330	19 S:1	0	0	0	0	0	1	0	1	1	0	0
Eumops perotis californicus western mastiff bat	G5T4 S3S4	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern WBWG_H-High Priority	120 120	296 S:1	0	0	0	0	0	1	1	0	1	0	0
Extriplex joaquinana San Joaquin spearscale	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_RSABG-Rancho Santa Ana Botanic Garden	10 10	124 S:1	0	0	0	0	0	1	1	0	1	0	0
Fritillaria liliacea fragrant fritillary	G2 S2	None None	Rare Plant Rank - 1B.2 USFS_S-Sensitive	400 550	82 S:4	0	0	1	1	0	2	1	3	4	0	0
Geothlypis trichas sinuosa saltmarsh common yellowthroat	G5T3 S3	None None	CDFW_SSC-Species of Special Concern USFWS_BCC-Birds of Conservation Concern	0 10	112 S:8	1	1	0	0	0	6	7	1	8	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Gilia millefoliata dark-eyed gilia	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive		54 S:1	0	0	0	0	1	0	1	0	0	0	1
Helianthella castanea Diablo helianthella	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	600 900	107 S:3	0	1	1	0	0	1	1	2	3	0	0
Hoita strobilina Loma Prieta hoita	G2? S2?	None None	Rare Plant Rank - 1B.1		34 S:1	0	0	0	0	0	1	1	0	1	0	0
Holocarpha macradenia Santa Cruz tarplant	G1 S1	Threatened Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden		37 S:1	0	0	0	0	1	0	1	0	0	1	0
Horkelia cuneata var. sericea Kellogg's horkelia	G4T1? S1?	None None	Rare Plant Rank - 1B.1 USFS_S-Sensitive	20 20	58 S:1	0	0	0	0	1	0	1	0	0	1	0
Lasiurus cinereus hoary bat	G5 S4	None None	IUCN_LC-Least Concern WBWG_M-Medium Priority		238 S:1	0	0	0	0	0	1	1	0	1	0	0
Lasthenia conjugens Contra Costa goldfields	G1 S1	Endangered None	Rare Plant Rank - 1B.1 SB_UCBBG-UC Berkeley Botanical Garden	5 10	33 S:2	0	0	0	0	1	1	2	0	1	0	1
Laterallus jamaicensis coturniculus California black rail	G3G4T1 S1	None Threatened	BLM_S-Sensitive CDFW_FP-Fully Protected IUCN_NT-Near Threatened NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	1 51	303 S:14	3	2	2	1	1	5	6	8	13	1	0
Masticophis lateralis euryxanthus Alameda whipsnake	G4T2 S2	Threatened Threatened		175 1,280	164 S:17	0	9	2	0	2	4	6	11	15	2	0
Melospiza melodia pusillula Alameda song sparrow	G5T2? S2S3	None None	CDFW_SSC-Species of Special Concern USFWS_BCC-Birds of Conservation Concern	1 40	38 S:18	0	11	0	0	0	7	8	10	18	0	0
Microcina lumi Lum's micro-blind harvestman	G1 S1	None None		400 600	2 S:2	0	0	0	0	0	2	2	0	2	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Monolopia gracilens woodland woollythreads	G3 S3	None None	Rare Plant Rank - 1B.2		57 S:1	0	0	0	0	0	1	1	0	1	0	0
Neotoma fuscipes annectens San Francisco dusky-footed woodrat	G5T2T3 S2S3	None None	CDFW_SSC-Species of Special Concern	700 700	34 S:1	1	0	0	0	0	0	0	1	1	0	0
Northern Coastal Salt Marsh Northern Coastal Salt Marsh	G3 S3.2	None None		10 15	53 S:8	0	1	0	0	0	7	8	0	8	0	0
Nycticorax nycticorax black-crowned night heron	G5 S4	None None	IUCN_LC-Least Concern	10 10	37 S:1	0	0	1	0	0	0	1	0	1	0	0
Oncorhynchus mykiss irideus pop. 8 steelhead - central California coast DPS	G5T2T3Q S2S3	Threatened None	AFS_TH-Threatened	200 200	44 S:1	0	0	0	0	0	1	0	1	1	0	0
Phalacrocorax auritus double-crested cormorant	G5 S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	1 30	39 S:2	1	0	0	0	0	1	1	1	2	0	0
Plagiobothrys glaber hairless popcornflower	GH SH	None None	Rare Plant Rank - 1A	15 20	9 S:2	0	0	0	0	2	0	2	0	0	2	0
Polygonum marinense Marin knotweed	G2Q S2	None None	Rare Plant Rank - 3.1		32 S:1	0	0	0	0	0	1	1	0	1	0	0
Rallus obsoletus obsoletus California Ridgway's rail	G5T1 S1	Endangered Endangered	CDFW_FP-Fully Protected NABCI_RWL-Red Watch List	0 15	98 S:14	3	4	2	0	0	5	6	8	14	0	0
Rana boylii foothill yellow-legged frog	G3 S3	None Candidate Threatened	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened USFS_S-Sensitive	120 120	2229 S:1	0	0	0	0	1	0	1	0	0	1	0
Rana draytonii California red-legged frog	G2G3 S2S3	Threatened None	CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable	45 1,100	1501 S:4	0	2	0	2	0	0	1	3	4	0	0
Reithrodontomys raviventris salt-marsh harvest mouse	G1G2 S1S2	Endangered Endangered	CDFW_FP-Fully Protected IUCN_EN-Endangered	1 5	144 S:23	3	2	0	0	0	18	20	3	23	0	0
Riparia riparia bank swallow	G5 S2	None Threatened	BLM_S-Sensitive IUCN_LC-Least Concern	10 10	297 S:1	0	0	0	0	0	1	1	0	1	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Rynchops niger black skimmer	G5 S2	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern NABCI_YWL-Yellow Watch List USFWS_BCC-Birds of Conservation Concern	3 3	7 S:1	1	0	0	0	0	0	1	0	1	0	0
Sanicula maritima adobe sanicle	G2 S2	None Rare	Rare Plant Rank - 1B.1 USFS_S-Sensitive		17 S:1	0	0	0	0	1	0	1	0	0	0	1
Scapanus latimanus parvus Alameda Island mole	G5THQ SH	None None	CDFW_SSC-Species of Special Concern	20 20	8 S:1	0	0	0	0	0	1	1	0	1	0	0
Senecio aphanactis chaparral ragwort	G3 S2	None None	Rare Plant Rank - 2B.2		82 S:1	0	0	0	0	0	1	1	0	1	0	0
Setophaga petechia yellow warbler	G5 S3S4	None None	CDFW_SSC-Species of Special Concern USFWS_BCC-Birds of Conservation Concern	280 280	70 S:1	0	1	0	0	0	0	0	1	1	0	0
Sorex vagrans halicoetes salt-marsh wandering shrew	G5T1 S1	None None	CDFW_SSC-Species of Special Concern	1 2	12 S:7	0	0	0	0	0	7	7	0	7	0	0
Spergularia macrotheca var. longistyla long-styled sand-spurrey	G5T2 S2	None None	Rare Plant Rank - 1B.2	10 10	22 S:2	0	0	0	0	0	2	2	0	2	0	0
Spirinchus thaleichthys longfin smelt	G5 S1	Candidate Threatened	CDFW_SSC-Species of Special Concern	0 0	46 S:1	0	0	0	0	0	1	1	0	1	0	0
Sternula antillarum browni California least tern	G4T2T3Q S2	Endangered Endangered	CDFW_FP-Fully Protected NABCI_RWL-Red Watch List	1 6	75 S:8	1	0	0	0	2	5	7	1	6	0	2
Streptanthus albidus ssp. peramoenus most beautiful jewelflower	G2T2 S2	None None	Rare Plant Rank - 1B.2 SB_RSABG-Rancho Santa Ana Botanic Garden USFS_S-Sensitive		103 S:2	0	0	0	0	0	2	1	1	2	0	0
Stuckenia filiformis ssp. alpina slender-leaved pondweed	G5T5 S2S3	None None	Rare Plant Rank - 2B.2	40 40	21 S:1	0	0	0	0	0	1	1	0	1	0	0
Suaeda californica California seablite	G1 S1	Endangered None	Rare Plant Rank - 1B.1		18 S:3	0	0	0	0	2	1	2	1	1	1	1

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Trifolium hydrophilum	G2	None	Rare Plant Rank - 1B.2	10	49	0	0	0	0	1	2	2	1	2	0	1
saline clover	S2	None		10	S:3											
Tryonia imitator	G2	None	IUCN_DD-Data Deficient	0	39	0	0	0	0	1	0	1	0	0	0	1
mimic tryonia (=California brackishwater snail)	S2	None		0	S:1											
Valley Needlegrass Grassland	G3	None		500	45	0	0	1	0	0	0	1	0	1	0	0
Valley Needlegrass Grassland	S3.1	None		500	S:1											

CNPS California Native Plant Society

Plant List

Inventory of Rare and Endangered Plants

53 matches found. Click on scientific name for details

Search Criteria

Found in Quads 3712262, 3712261, 3712168, 3712252, 3712251, 3712158, 3712242 3712241 and 3712148;

Modify Search Criteria | Export to Excel | Modify Columns | Modify Sort | Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Acanthomintha duttonii	San Mateo thorn-mint	Lamiaceae	annual herb	Apr-Jun	1B.1	S1	G1
Allium peninsulare var. franciscanum	Franciscan onion	Alliaceae	perennial bulbiferous herb	(Apr)May-Jun	1B.2	S1	G5T1
Amsinckia lunaris	bent-flowered fiddleneck	Boraginaceae	annual herb	Mar-Jun	1B.2	S2S3	G2G3
Androsace elongata ssp. acuta	California androsace	Primulaceae	annual herb	Mar-Jun	4.2	S3S4	G5?T3T4
Arctostaphylos regismontana	Kings Mountain manzanita	Ericaceae	perennial evergreen shrub	Dec-Apr	1B.2	S2	G2
Astragalus tener var. tener	alkali milk-vetch	Fabaceae	annual herb	Mar-Jun	1B.2	S2	G2T2
Atriplex depressa	brittlescale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G2
Atriplex minuscula	lesser saltscale	Chenopodiaceae	annual herb	May-Oct	1B.1	S2	G2
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	Mar-Jun	1B.2	S2	G2
Calandrinia breweri	Brewer's calandrinia	Montiaceae	annual herb	(Jan)Mar-Jun	4.2	S4	G4
Calochortus umbellatus	Oakland star-tulip	Liliaceae	perennial bulbiferous herb	Mar-May	4.2	S3?	G3?
Campanula exigua	chaparral harebell	Campanulaceae	annual herb	May-Jun	1B.2	S2	G2
Castilleja ambigua var. ambigua	johnny-nip	Orobanchaceae	annual herb (hemiparasitic)	Mar-Aug	4.2	S4	G4T5
Centromadia parryi ssp. congdonii	Congdon's tarplant	Asteraceae	annual herb	May-Oct(Nov)	1B.1	S2	G3T2
Chloropyron maritimum ssp. palustre	Point Reyes bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Oct	1B.2	S2	G4?T2
Cirsium fontinale var. fontinale	Crystal Springs fountain thistle	Asteraceae	perennial herb	(Apr)May-Oct	1B.1	S1	G2T1
Cirsium praeteriens	lost thistle	Asteraceae	perennial herb	Jun-Jul	1A	SX	GX
Clarkia concinna ssp. automixa	Santa Clara red ribbons	Onagraceae	annual herb	(Apr)May-Jun(Jul)	4.3	S3	G5?T3
Collinsia corymbosa	round-headed Chinese-houses	Plantaginaceae	annual herb	Apr-Jun	1B.2	S1	G1

Collinsia multicolor	San Francisco collinsia	Plantaginaceae	annual herb	(Feb)Mar-May	1B.2	S2	G2
Dirca occidentalis	western leatherwood	Thymelaeaceae	perennial deciduous shrub	Jan-Mar(Apr)	1B.2	S2	G2
Eryngium aristulatum var. hooveri	Hoover's button-celery	Apiaceae	annual / perennial herb	(Jun)Jul(Aug)	1B.1	S1	G5T1
Eryngium jepsonii	Jepson's coyote thistle	Apiaceae	perennial herb	Apr-Aug	1B.2	S2?	G2?
Extriplex joaquinana	San Joaquin spearscale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G2
Fritillaria liliacea	fragrant fritillary	Liliaceae	perennial bulbiferous herb	Feb-Apr	1B.2	S2	G2
Helianthella castanea	Diablo helianthella	Asteraceae	perennial herb	Mar-Jun	1B.2	S2	G2
Hesperolinon congestum	Marin western flax	Linaceae	annual herb	Apr-Jul	1B.1	S1	G1
Holocarpha macradenia	Santa Cruz tarplant	Asteraceae	annual herb	Jun-Oct	1B.1	S1	G1
Lasthenia conjugens	Contra Costa goldfields	Asteraceae	annual herb	Mar-Jun	1B.1	S1	G1
Leptosiphon acicularis	bristly leptosiphon	Polemoniaceae	annual herb	Apr-Jul	4.2	S4?	G4?
Lessingia hololeuca	woolly-headed lessingia	Asteraceae	annual herb	Jun-Oct	3	S3?	G3?
Malacothamnus arcuatus	arcuate bush-mallow	Malvaceae	perennial evergreen shrub	Apr-Sep	1B.2	S2	G2Q
Malacothamnus davidsonii	Davidson's bush-mallow	Malvaceae	perennial deciduous shrub	Jun-Jan	1B.2	S2	G2
Malacothamnus hallii	Hall's bush-mallow	Malvaceae	perennial evergreen shrub	(Apr)May-Sep(Oct)	1B.2	S2	G2
Micropus amphibolus	Mt. Diablo cottonweed	Asteraceae	annual herb	Mar-May	3.2	S3S4	G3G4
Monardella antonina ssp. antonina	San Antonio Hills monardella	Lamiaceae	perennial rhizomatous herb	Jun-Aug	3	S1S3	G4T1T3Q
Monolopia gracilens	woodland woolythreads	Asteraceae	annual herb	(Feb)Mar-Jul	1B.2	S3	G3
Navarretia myersii ssp. myersii	pincushion navarretia	Polemoniaceae	annual herb	Apr-May	1B.1	S2	G2T2
Navarretia paradoxiclara	Patterson's navarretia	Polemoniaceae	annual herb	May-Jun(Jul)	1B.3	S2	G2
Navarretia prostrata	prostrate vernal pool navarretia	Polemoniaceae	annual herb	Apr-Jul	1B.1	S2	G2
Piperia michaelii	Michael's rein orchid	Orchidaceae	perennial herb	Apr-Aug	4.2	S3	G3
Plagiobothrys chorisianus var. chorisianus	Choris' popcornflower	Boraginaceae	annual herb	Mar-Jun	1B.2	S2	G3T2Q
Plagiobothrys glaber	hairless popcornflower	Boraginaceae	annual herb	Mar-May	1A	SH	GH
Polemonium carneum	Oregon polemonium	Polemoniaceae	perennial herb	Apr-Sep	2B.2	S2	G3G4
Puccinellia simplex	California alkali grass	Poaceae	annual herb	Mar-May	1B.2	S2	G3
Ranunculus lobbii	Lobb's aquatic buttercup	Ranunculaceae	annual herb (aquatic)	Feb-May	4.2	S3	G4

Senecio aphanactis	chaparral ragwort	Asteraceae	annual herb	Jan-Apr(May)	2B.2	S2	G3
Streptanthus albidus ssp. peramoenus	most beautiful jewelflower	Brassicaceae	annual herb	(Mar)Apr-Sep(Oct)	1B.2	S2	G2T2
Stuckenia filiformis ssp. alpina	slender-leaved pondweed	Potamogetonaceae	perennial rhizomatous herb (aquatic)	May-Jul	2B.2	S3	G5T5
Suaeda californica	California seablite	Chenopodiaceae	perennial evergreen shrub	Jul-Oct	1B.1	S1	G1
Trifolium amoenum	two-fork clover	Fabaceae	annual herb	Apr-Jun	1B.1	S1	G1
Trifolium hydrophilum	saline clover	Fabaceae	annual herb	Apr-Jun	1B.2	S2	G2
Tropidocarpum capparideum	caper-fruited tropidocarpum	Brassicaceae	annual herb	Mar-Apr	1B.1	S1	G1

Suggested Citation

California Native Plant Society, Rare Plant Program. 2018. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 01 October 2018].

Search the Inventory
Simple Search
Advanced Search
Glossary

Information
About the Inventory
About the Rare Plant Program
CNPS Home Page
About CNPS
Join CNPS

Contributors
The Calflora Database
The California Lichen Society
California Natural Diversity Database
The Jepson Flora Project
The Consortium of California Herbaria
CalPhotos

Questions and Comments
rareplants@cnps.org

APPENDIX E

Phase 1 Cultural Resource Assessment Report

FINAL

PHASE I CULTURAL RESOURCE ASSESSMENT REPORT

For the Standby Power Generation System Upgrade Project, Alameda County, California

Submitted to:

Paul Scheidegger
Scheidegger & Associates
201 N. Civic Drive
Walnut Creek, CA 94596

Submitted by:

Archeo-Tec Inc.
5283 Broadway
Oakland, CA 94618

January 17, 2019

Table of Contents

Introduction

This document presents the methods and findings of a Phase I Cultural Resources Evaluation for the Union Sanitary District Standby Power Generation System Upgrade Project, Union City, Alameda County, California. The proposed project is located in the northwest corner of the campus of the Union Sanitary District (USD). The campus is located in the western portion of Union City between Union City Boulevard and the San Francisco Bay shoreline (Figure 1). This Phase I Evaluation addresses the area's potential for archaeological resources and the protocol for discovery of human remains.

The Union Sanitary District Standby Power Generation System Upgrade Project consists of the construction of a new generator building at the northwestern corner of the USD facility. Smaller, shallower areas of impact would take place south of the proposed building: a duct bank corridor, a substation, and a fuel storage and battery storage area.

Background research and consultation for the whole USD property were completed as part of the scope of the USD Emergency Outfall Project; this study was completed in the spring of 2018 and results are included herein. This study consisted of a review of documents on file at the Northwest Information Center (NWIC) at Sonoma State University, consultation with the Native American Heritage Commission (NAHC) and interested Native American representatives, and a pedestrian surface survey of the Area of Potential Effects (APE).

The Phase I study found no evidence of identified archaeological resources within the APE. Therefore, pursuant to Section 106 of the National Historic Preservation Act (NHPA), a finding of "No historic properties affected" as pertains to archaeological resources is appropriate.

Proposed Impacts

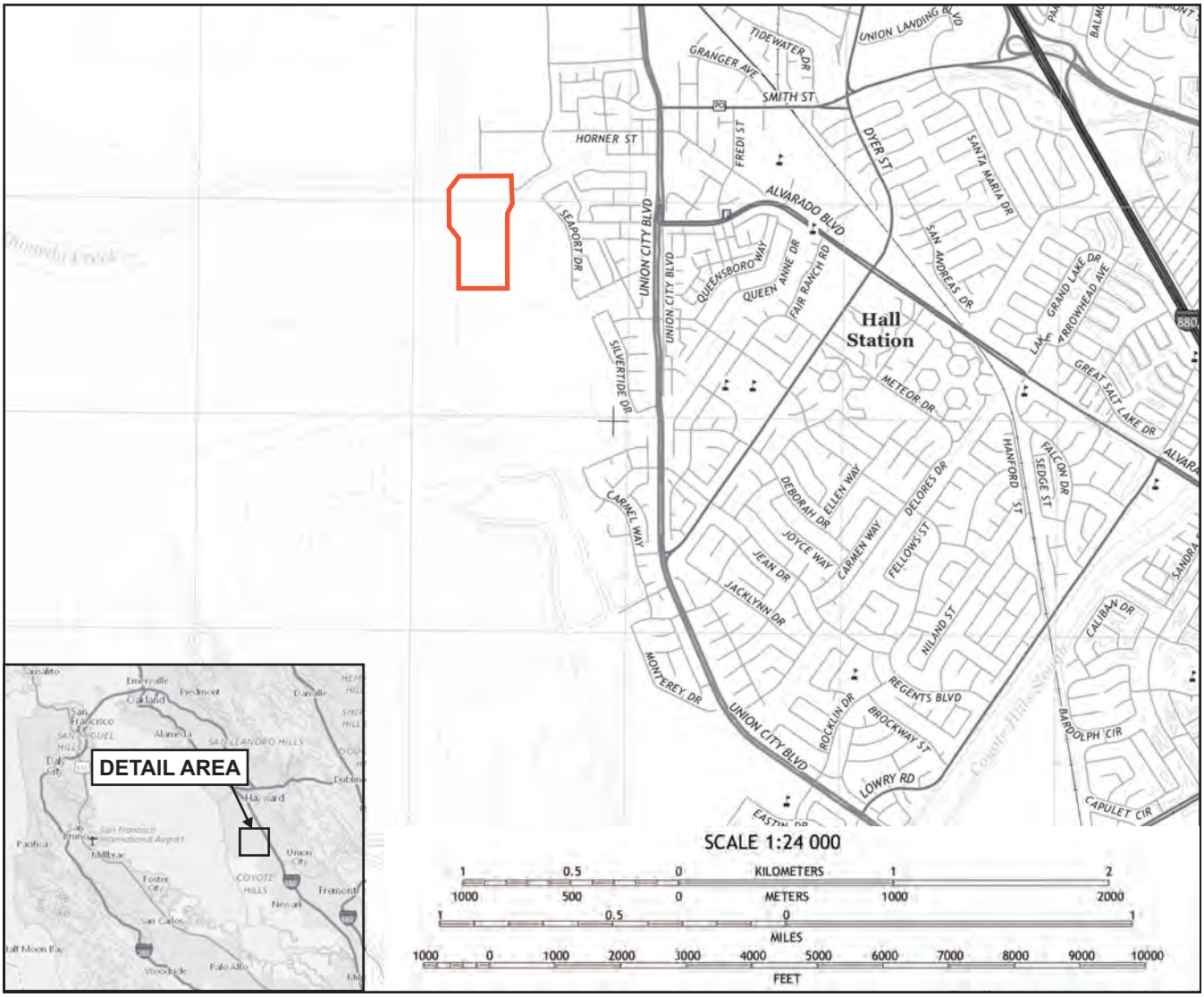
Excavation for the new generator building, which measures 220 feet in length and 100 to 180 feet in width, would reach approximately 6 feet below ground surface. Three other structures would require excavation: a fuel storage area southwest of the generator building (80 by 50 feet in footprint, 2-4 feet of excavation) and a battery storage system to its south (100 by 50 feet in footprint, 2-4 feet of excavation). Duct bank corridors measuring 3-6 feet wide and 3 feet deep will be installed close to these structures. Trenching proposed for the Digester 7 project and existing conduits would be utilized along the western edge of the project. At the southwest corner, a new substation (40 by 40 feet in footprint, 2-4 feet of excavation) would be constructed. Foundation impacts include mat foundation with minimal over-excavation (included in depth estimates) and a drilled pile foundation whose specifications are still in development. Areas of impact are depicted on Figure 2.

Regulatory Context

This study has been completed to ensure compliance with both the California Environmental Quality Act (CEQA) and Section 106 of the National Historic Preservation Act of 1966 ("Section 106"), in consideration of the effects of its undertakings on cultural resources.

CEQA-Plus Definition

A portion of the Project's funding may be supplied by the Clean Water State Revolving Fund (CWSRF) Loan Program, which is administered by the State Water Resources Control Board (SWRCB). As the CWSRF Loan Program is partially funded by the United States Environmental Protection Agency (EPA), it is subject to "cross-cutting" federal environmental regulations, including Section 106, in addition to state



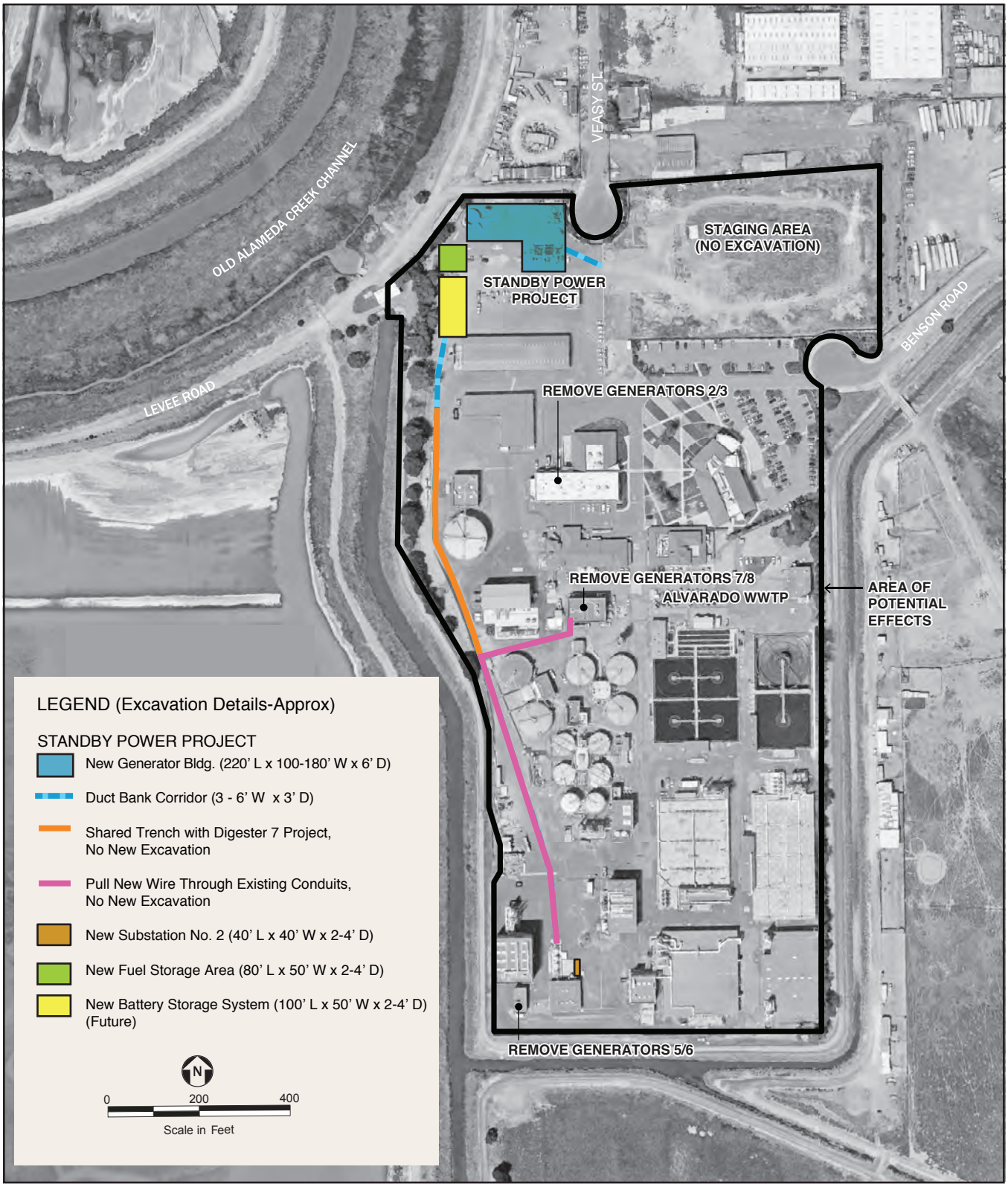
Images: USGS.gov

Detail from Newark Quadrangle, 7.5 Minute Map CA 2015

Project Boundaries

1. Project Location Map
Union Sanitary District Standby Power Project

ARCHEO-TEC
CONSULTING ARCHAEOLOGISTS



Source: Brown & Caldwell

2. Area of Potential Effects
Union Sanitary District Standby Power Project

ARCHEO-TEC
CONSULTING ARCHAEOLOGISTS

environmental regulations. To this end, the EPA and the SWRCB have entered into an Operating Agreement that combines CEQA guidelines with applicable federal statutes to create the "CEQA-Plus" process, which simultaneously fulfills both state and federal environmental review requirements.

CEQA defines a lead agency as the agency that carries out a project, while a responsible agency has some bearing on preparing environmental review documents. The Union Sanitary District is the Lead Agency for the Standby Power Generation System Upgrade Project, and SWRCB is a Responsible Agency. The EPA has delegated lead federal agency responsibility to SWRCB for carrying out the Section 106 requirements.

The National Register of Historical Places

The National Register is a listing of properties that are important to the history of our nation. To be eligible for listing, a property must typically be 50 years of age or more; it must possess historic significance; and it must possess integrity of location, design, setting, materials, workmanship, feeling and association. Historic significance is the importance of a property to the history, architecture, archaeology, engineering, or cultural aspects of a community. These significant resources can be in the form of districts, sites, buildings, or structures. To qualify for the National Register, a property must be significant to American history at the local, state, or federal level(s) (36 CFR 60.4(a-d)), and must:

A) be associated with events that have made a significant contribution to the broad patterns of history;
B) be associated with the lives of persons significant to our past;
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 to prehistory or history.

Archaeological resources are typically eligible under Criterion D for their informational value. Once a cultural resource is determined to exist or potentially exist within the boundaries of the project site, the identified historic property is then evaluated for its potential National Register eligibility.

Personnel Qualifications

All work was overseen by Principal Investigator Allen G. Pastron. Dr. Pastron earned his Doctorate in Anthropology from the University of California at Berkeley in 1977. He has four decades of experience with both prehistoric and historic archaeological sites in the Bay Area.

Archival research and consultation were completed by Michelle Staley and Emily Wick. The pedestrian survey was completed by Michelle Staley. Juliana Quist contributed to the analysis of the area's geography.

Michelle Staley earned a Master's degree in Anthropological Science from Stanford University in 2005. She has 14 years of experience in Bay Area archaeology. Emily Wick earned an interdisciplinary Bachelor's degree from the University of Redlands in 2000 and has 17 years of experience in Bay Area archaeology. Juliana Quist has a B.S. in Anthropology from the University of New Mexico (2005) and a Masters in GIS from North Carolina State University (2009). She has 10 years of archaeological field experience.

Historical Context

The subject property is situated in a rural marshland setting in western Alameda County along the eastern shore of the San Francisco Bay. Most of the flat topography is subject to flooding during the rainy season. Cool moist winters and warm dry summers characterize the climate of the area.

Ethnography

At the start of the historic era, the Project area was situated within the territory claimed by the Ohlone people, previously referred to as Costanoan (the Spanish derivative for "coastal people") in anthropological literature (Kroeber 1925). The term Costanoan implies a linguistic affiliation and does not necessarily reflect a common cultural relationship or identity.

In 1770, the Ohlone/Costanoan population numbered at most around 10,000 people (Levy 1978:485), perhaps fewer (Kroeber 1925:464). But forty years later, about A.D. 1810, the aboriginal ways of these people mostly disappeared in the face of relentless European encroachment and its devastating impacts – disease, warfare, displacement, and, above all, the California mission system (Cook 1943; Cook 1957).

There is some debate as to whether the area's languages are, in fact, separate languages or merely regional dialects. Early ethnographic works proposed that the Costanoan language family had eight distinct, and mutually unintelligible, languages: Ramaytush (spoken on the San Francisco Peninsula), Tamien (Santa Clara Valley), Chochenyo (most of the East Bay), Karkin (Carquinez Strait), Awaswas (Santa Cruz), Mutsun (Gilroy area or Pajaro River Tribelets), Rumsen (Carmel, Sur and lower Salinas rivers) and Chalon or Soledad (Salinas River). According to these early linguistic interpretations, the peoples who lived in and around the present Project area at the time of contact with European settlers spoke Tamien [Tamyen] (Kroeber 1925; Shipley 1978:80–90; Levy 1978:485).

The family household was the basic social unit, which was extended patrilineally (Harrington 1933:3). An average of about 15 individuals – although this varies considerably – made up the household and sororal polygyny was apparently commonplace (Broadbent 1972:62; Palou 1924:64). The next larger social unit was the clan (Harrington 1933:3). Additionally, the Ohlone were divided into moieties – the Bear and the Deer – following the common central California practice (cf. Kroeber 1925:835). The largest social unit throughout most of California was the tribelet (Kroeber 1962), and in this respect, the Ohlone were no exception. The tribelet, or group of interrelated villages under the leadership of a single headman, consisted of about 200 to 400 people (Levy 1978; Milliken 1995:21). Each tribelet – of which there may have been several – served as an autonomous political unit, presumably for enforcing equal access to resources for its members and for protection from hostile neighbors.

The Ohlone were primary collectors and hunters of fish and game (Levy 1978:487). Of major importance to the aboriginal diet, as documented both ethnographically and archaeologically, were molluscan resources: ocean and bay mussels (*Mytilis californianus* and *M. edulis*), clam (especially *Macoma nasuta*), and oysters (especially *Ostrea lurida*) were extensively exploited. Many other littoral resources, including varieties of gastropods and crustaceans, contributed protein to the diet, as documented in detail by Levy (1978:481), other sources of meat included all manner of land and waterfowl, and terrestrial and sea mammals, both large and small. Fish contributed a large measure of protein to the Ohlone diet, and were taken by net, trap, hook, spear, and poison (Harrington 1921; Crespi 1927:280; Font 1930; Bolton 1933). Ocean and estuarine environments yielded a wide variety of species including steelhead (*Salmogairdenerii*), sturgeon (*Acipenser* sp.), salmon (*Oncorhynchus* sp.), ray (*Mylobtis californica*),

lamprey (*Entosphenus tridentatus*) and varieties of small sharks, perches, and smelts (Follett 1975:73; Levy 1978:491–492).

In common with most aboriginal groups in California, plant foods probably contributed the majority of calories to the Ohlone diet. The staple was the acorn, pounded by stone mortar and pestle to form a mush, a gruel, or bread, following the complex technique of leaching tannic acids (Gifford 1965). Buckeye (*Aesculus californica*) yielded edible nuts. A variety of berries were harvested for direct consumption, for flavoring the bland acorn starch, and for cider (Harrington 1921; Merriam 1966-1967:3). Roots, shoots, and seeds were savored, including wild onion (*Allium* sp.), cattail (*Typha latifolia*), wild carrot (*Daucus pusillus*), dock (*Rumex* sp.), tarweed (*Madia* sp.), chia (*Salvia columbariae*), and other species (Levy 1978:491). Controlled burning of the land was practiced in order to renew the succession of plant communities (Kroeber 1925:467; Crespi 1927; Galvan 1968; Lewis 1973).

In addition to providing primary subsistence, the flora and fauna of a rich natural habitat provided the remainder of life's necessities for the Ohlone. Tules (*Scirpus lacustris*) provided building materials for structures (Kroeber 1925:468) and for balsas (Heizer and Massey 1953). The balsa canoe was instrumental in fishing (Font 1933), waterfowling, and probably the hunting of sea mammals (cf. Kroeber 1925:835) These also facilitated navigation of the salt marshes and permitted transportation across the bay (Kroeber 1925:468). Vegetal resources also provided the fabric for net and cord manufacture and especially, basket making. These latter were used in their various forms as cooking containers and utensils, storage containers, seed beaters, water jugs, cradles (Merriam 1967; Broadbent 1972:63), fish traps (Crespi 1927:280), trays for leaching and drying acorn meal (Kroeber 1925:467), and for burden (Kroeber 1925:468; Levy 1978:493).

Animal remains – bone, tooth, beak, and claw – provided awls, pins, daggers, scraping and cutting knives, and other tools. Pelts and feathers provided clothing and bedding (Kroeber 1925:467; Levy 1978:493). Sinew was used for bow support and bow strings (Harrington 1921). Feather, bone, and especially shell were used for items of ornamentation, such as beads, pendants, hair bangles, septum inserts, earrings and the like (Mason 1916:433–435).

Local rock and mineral sources provided cherts and metamorphic and igneous stones for tool manufacture; and local sandstone, highly indurated, provided suitable material for grinding and pounding tools. Exotic materials, such as steatite and particularly obsidian, could be obtained in trade, using for barter such locally available commodities as cinnabar and hematite (Heizer and Treganza 1972). Other valuable resources used to obtain exotic materials in trade with non-costal peoples included salt, shellfish meat, and shell for ornament manufacture (Davis 1961:23).

Historical Period

The first European explorers in the area were Jose Francisco Ortega in 1769 and Anza and Font in 1776. The former expedition did not leave a substantial record, but the latter remarked on the optimal settlement conditions of the present Project area: a geographically flat area at the southern tip of the San Francisco Bay. Anza and Font noted three indigenous villages of about 70 people each, as well as pathways to the south. Spanish settlement in the area soon followed; the Pueblo de San José and the Mission of Santa Clara de Asís were founded in 1777 (Bowden 2012:17).

Beginning in the first decade of the nineteenth century and continuing until the 1840s, the lands surrounding the project area were part of the extensive East Bay ranch holdings of Mission of the Glorious

Patriarch, Saint Joseph (Milliken 1995:153). Mission San Jose was established June 9, 1797, and its headquarters were about 10 miles to the southeast of the Project site. A vast swath of the land surrounding Mission San Jose, encompassing the entire eastern shore of the San Francisco Bay and extending into the Coast Ranges further to the east, was used to support the Mission by grazing sheep and cattle and growing grain (Hendry and Bowman 1940:487). As with all of the Mission's activities, the majority of this ranch work depended upon the labor of Indian neophytes, both from local villages and from raided communities throughout Northern and Central California.

Rancho Era (1821-1848)

Following the transition of California from Spanish to Mexican rule in 1821, cattle ranching became the primary industry in Alta California. The hide and tallow trade was the principal foundation for early commercial interest on the California coast and the San Francisco Bay (Phelps 1983:25), to the extent that hides were sometimes called "California bank notes" (Nickel 1978). After the California missions were secularized in 1834, mission lands were privatized by the Mexican government and distributed to prominent families who established large ranchos and claimed the missions' animals and equipment.

With the rancho system as the primary socioeconomic institution of the state, the Indian populations, deprived of their right to mission lands, and, in many cases, unable to return to tribal life, had few other options but to enter employment as rancho laborers. This arrangement ranged from slavery to wage labor. Typically, a system of peonage was created where a master provided housing, food, and basic support for an Indian in exchange for labor. Mission records show that rancho families brought in "orphans" (i.e., children of non-Christian parents) to be baptized, and there is some evidence that capture of children from remaining hunter-gatherer communities was a common practice (Milliken et al. 2009:153–167).

By the 1840s, the Missions had relinquished its claim to grazing lands in the East Bay, including those encompassing the present project area. In 1844, Augustin Alviso and Tomas Pacheco were granted Rancho Potrero de los Cerritos, which means "pasture of the little hills." The 10,000-acre land grant included the Project site.

The date of July 8, 1846, marked the conversion of the hamlet of San Francisco from Mexican to American jurisdiction. On this day, a landing party from the sloop-of-war *Portsmouth*, under the command of Captain John B. Montgomery, waded ashore at the town of Yerba Buena and raised the stars and stripes to the top of the flagpole in the town's dusty plaza, thereby claiming California for the United States.

Early American Period (1848 - 1918)

California was claimed for the United States in 1846 during the Mexican-American War; the Treaty of Guadalupe Hidalgo confirmed the transfer in 1848. In the years after the American conquest of "Upper California", rancho lands were divided and sold. The project area was initially part of a hundred-acre tract of land purchased in 1850 by John M. Horner.

The New-Jersey-born Horner, a Mormon who arrived in 1846 on the ship *Brooklyn*, was among the first American-period landowner-farmers in the state. A farmer by trade, Horner arrived with little but seed potatoes and a pistol to his name, the latter of which he traded for a pair of oxen. Initially settling near Mission San Jose, he bought land from, and employed, formerly Missionized Indians. Over the course of his period of prosperity, he built over a dozen miles of public road, laid out eight towns, and was active in growing and trading produce (Justesen 1991).

Horner named the hundred acres containing the Project area "Union City" after his newly purchased steamship *Union*, and built a landing with warehouses at the bend in Alameda Creek just north of the Project area. Union City's location at the mouth of Alameda Creek made it well-positioned for shipping to and from San Francisco and Benicia. Horner and *Union* exported produce from Horner's land and brought back hardware, manufactured items, and mail (Swenson 2009).

The small village of Union City thrived until Horner was hit hard by the post-Gold-Rush economic crash of 1853. Despite extensive land holdings in the East Bay, South Bay, and San Francisco, he was financially ruined and never fully recovered. After pouring large amounts of money into his properties—securing his titles in a time of rapid cultural change, building fences by hiring laborers to travel to redwoods and cut down trees—he was largely unable, due to lack of financial infrastructure in the growing region—to borrow against them. Horner was forced to sell his steamer, mill, and most of his property at a loss (Justesen 1991; Nickel 1978).

Alameda County was founded in 1853. In 1854, the nearby village of New Haven was combined with Union City to form the town of Alvarado. Alvarado was the first county seat of Alameda County as well as the regional center of night life, which was rumored to have rivaled the Barbary Coast in splendor and debauchery. Even after the area containing Horner's original settlement was absorbed into Alvarado, many people continued to refer to it as Union City, and maps as late as 1927 divided Union City from Alvarado (Swenson 2009).

As Alvarado grew, the Union City neighborhood waned. Horner scaled back his farming and no longer grew enough for export. He thus ceased his steamboat runs; residents and even houses themselves were moved to the center of Alvarado (Swenson 2009:7). In an 1859 letter to her New England family, an early resident of Alvarado named Marion Dyer wrote:

> Most of the buildings here in Alvarado were hauled from Union City. The latter place is getting rather shorn of its ancient glory while the former is in the ascendant. Mr. John Horner was the founder of Union City and Henry Smith of Alvarado. They are now both poor [Swenson 2009:10].

In 1878, James J. Stokes bought the property that now contains the Project area, and it became known as Stokes' Landing (Swenson 2008). From Stokes' Landing, beer, salt, and sugar were shipped to San Francisco via Alameda Creek from the county's growing industrial operations.

Alvarado flooded annually, which was a factor in the county seat being moved from Alvarado to San Leandro in the mid-1850s (it was ultimately moved to Oakland in 1875). As flooding that changed the course of Alameda Creek clearly occurred (Nickel 1978), the Project area's position relative to the bend in the creek may have changed over time; likewise, flooding may have re-deposited cultural materials from the nearby village to the Project area. Disaster's impacts to the human and natural landscape were not limited to flooding: the earthquake of 1868 on the nearby Hayward Fault was severe throughout Alvarado, and simulation maps show the area reaching a magnitude of above eight (United States Geological Survey 2008).

At century's end, the Union City area of Alvarado consisted of a scattering of domiciles, a pump station (located north of the Project area), as well as a stove foundry to its north. No known development took

place within the Project boundaries during the later nineteenth century (Sanborn-Perris Map Company 1896); however, mapping was not continuous and structures or activities may have gone unrecorded.

After the turn of the twentieth century, large portions of surrounding marsh areas on the southeastern shore of the San Francisco Bay in the southern portion of Alameda County were used in the salt industry. The Project area and its immediate vicinity changed little from the late nineteenth to the mid-twentieth century (Sanborn Map Company 1944).

Union Sanitary District (1918-Present)

The Union Sanitary District was founded in 1918 to provide sewage treatment to southern Alameda County.

Union City itself was formed in 1959, uniting Alvarado with the nearby municipality of Decoto. After over a hundred years as the former Union City area of Alvarado, the neighborhood thus became part of the Alvarado area of Union City. (Reflecting this reversal in nomenclature is the Project property itself, which is known as the "Alvarado Treatment Plant": one facility among many within the greater Union Sanitary District.)

The first treatment facility within the Project site was constructed in 1962 to serve Union City; the current 33-acre facility was completed in 1981 and services the towns of Union City, Newark, and Fremont (Union Sanitary District 2016).

Archaeological Record

Prehistoric research in the San Francisco Bay Area is one of the oldest archaeological traditions in California. When U.C. Berkeley archaeologist N.C. Nelson conducted the first intensive archaeological survey of the region between 1907 and 1908, he recorded no fewer than 425 shellmounds on or near the shoreline of the bay (Nels C. Nelson 1909). It is also useful to cite Nelson's discussion concerning the wide variety of environmental settings in which prehistoric sites were located throughout the San Francisco Bay region:

> [Shellmounds were] situated in a great variety of places; but, on the whole, the positions may be characterized as "convenient" rather than in any sense "strategic." Many of the largest mounds are located at the head of the sheltered coves, yet not a few deposits lie in thoroughly exposed places, out on the bluff and higher headlands. Occasionally a hillside, with or without any accommodating shelf or hollow, has been chosen, doubtless on account of some small spring issuing in the vicinity… Some mounds are found in apparently unnatural situations, such as on the plain where no streams pass, or out in the salt-marsh, where fresh water could not be had, [but] normally shell heaps lie close to sea level.
>
> The fact is that nearly all the mounds lie within fifty feet of the surface of the bay water… but exceptions occur, [some] mounds lie very far above the normal zone…[and] at least ten of the known deposits extend below sea [N. C. Nelson 1909:328–329].

The large prehistoric population of the San Francisco Bay region resulted in the creation of a prolific archaeological record. The Bay Area's landscape was marked by numerous large and small mounds of earth and shell containing a variety of prehistoric cultural materials and features, which captivated early

twentieth-century archaeologists like N.C. Nelson and Max Uhle. Archaeological sites in the greater vicinity of the project area consist of such shellmounds.

Coyote Hills Sites

Approximately three miles to the south of the Project area lies the Coyote Hills Slough, where Alameda Creek empties into the San Francisco Bay. This was an area of intensive prehistoric settlement and resource exploitation (Garaventa et al. 1991). Major sites include CA-ALA-12, CA-ALA-13, CA-ALA-328, CA-ALA-329 and CA-ALA-341. (Please note that this area was not part of our study area, and was not updated in the records search. Recent sites may not be included.)

Between 1965 and 1991, CA-ALA-13 had been studied numerous times (Rackerby and Whelan 1967; Jackson 1973; Banks and Fredrickson 1977; Clark et al. 1984; Banks 1985; Garaventa et al. 1991). In 1949, Fenenga described the site as a "large shell midden". In 1965 Rackerby updated the site description and conducted site excavations through San Francisco State College. Peter Banks updated the site record in 1977 in association with California State College, Sonoma (now Sonoma State University).

CA-ALA-12 has been recorded and/or excavated on three occasions. Fenenga first recorded the site as a "small low shell mound" with "burials washed out in wave cut west bank" in 1949. Rackerby apparently conducted excavations at the site in 1965 (Fenenga and Rackerby 1965). The site boundaries were firmly established during test trench and auger excavations at the site; Banks recorded this excavation in 1985. Banks describes CA-ALA-12 as, "one of at least four prehistoric sites situated along an un-named tributary that is south of Lines A and K and within the Coyote Hills Regional Park". The 1985 investigations determined that the site midden varied from 2 to 4 feet thick (Banks 1985)

The Garaventa study indicated CA-ALA-13 extended 1.5 to 1.7 meters in depth and is in an area of "extreme and high sensitivity" (Garaventa et al. 1991:1). San Francisco State removed 108 burials and several thousand artifacts, including bone tools and shell ornaments, in 1965 (Jackson 1973). Clark, Wiberg, and Holman located cultural deposits associated with CA-ALA-13 covering approximately 1 acre (1984). The Banks investigations included field reconnaissance and auger testing within the project area. Those investigations located the extents of CA-ALA-13 in the aftermath of a channelization project in the fall of 1982 (Banks 1985).

Nelson originally recorded CA-ALA-328 as mound #328. Excavations within this large shell mound have been recorded by Wedel in 1935, Treganza in 1949–1968, Hayward State University in 1966–1968, and Banks in 1977. At least 517 burials and over 3,500 artifacts were recovered during excavations at this site. It is described as a "major habitation site" and, according to Banks, was inhabited from 380 BC to the historic era. Banks stated that the site "may be the best preserved shellmound in the Bay Area" (Banks 1977).

CA-ALA-329, Nelson Mound #329, is another large midden site and is located directly to the south of CA-ALA-13. The site was discovered during the construction of a reservoir in 1925 and is characterized by ashy soil, shell, animal bone, and fire-altered rock (Coberly 1973). This habitation and burial site was studied intensively by University of California and Stanford field courses between 1947 and 1968 (Jackson 1973). The dimensions of the mound are 450 by 300 feet. Roughly 300 burials were removed. It was augered in 1984 during marsh restoration monitoring to further determine its limits (Clark et al. 1984).

CA-ALA-341 was most likely destroyed by the Army Corps of Engineers, July 1, 1965. It was described as a, "buried midden site exact dimensions unknown, the mound shape rises 3-4 feet above flood plain but there is three feet of silt on top of the midden" (Rackerby 1965).

Records Search Results

Prior to the commencement of the archaeological field reconnaissance, maps and other archival documents concerning previous archaeological studies that took place within a one-mile radius of the project site were consulted at the Northwest Information Center (NWIC) (Access Agreement File #17-1956) California Historical Resources Information System. Michelle Staley of Archeo-Tec conducted this documentary research on February 2, 2018.

One archaeological resource was found within a one-mile radius of the Project area: Nelson's Shellmound CA-ALA-326. Though its location is mapped, no official site record exists for this resource.

Twenty-seven previous studies have been conducted within the study area: S-727, S-814, S-0848, S-1479, S-2916, S-7047, S-8690, S-9768, S-10046, S-13769, S-14619, S-15236, S-18217, S-18903, S-25275, S-27516, S-27866, S-27987, S-30882, S-31419, S-31708, S-31919, S-33061, S-32329, S-33699, S-34861, and S-36278. None of these studies resulted in significant archaeological resources being uncovered.

Two of these studies included analysis of the present Project area: S-13769 (Origer 1992) and S-14619 (Chavez 1992). S-13769, conducted in 1992 by Origer & Associates, consisted of an archaeological survey of the Alvarado Wastewater Treatment Plant, which is the present Project property. No archaeological resources were found, and the surface consisted largely of inaccessible (paved and built) areas. Soils that were observed consisted of fill. In addition, the study indicated that, based on communication with a worker at the Treatment Plant, the construction of the plant consisted of the removal of approximately 20 feet of bay mud. The mud was replaced with fill, and the treatment plant constructed atop the mud (Origer 1992).

Later that same year, study S-14619 (Chavez 1992) took place across several sites within the Union Sanitary District, one of which was the "Alvarado Plant Site". After citing the negative results of the Tom Origer and Associates study, the report states that their "investigations were limited to reviewing the outfall location and pipeline alignment, which consisted of highly disturbed terrain with extensive fill present. No evidence of archaeological or historical resources was observed" (Chavez 1992).

Native American Consultation

As part of the present cultural resources assessment, Archeo-Tec consulted with the staff of the Native American Heritage Commission (NAHC) in Sacramento with the intention of determining whether any portion of the present project alignment may encroach upon any sites deemed sacred by members of the local Native American Community. In order to obtain this information, a letter was sent to the NAHC on January 29, 2018. This letter formally requested that the Native American Heritage Commission consult its Sacred Lands File in order to procure the requested information.

On February 21, 2018, the NAHC responded via email. The email contained an attached letter dated February 20, 2018; the letter read that the records search of the Sacred Lands File (SLF) was negative. Nonetheless, the above referenced letter cautioned that the "absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area" and included contact

information for tribal representatives in the area. A copy of the NAHC letter of February 20, 2018, is included in Appendix I of this report.

On February 22, 2018, Archeo-Tec sent individual letters via email to each of the tribal representatives on the NAHC's list. No responses were received. Per the recommendations of the list, follow-up telephone calls were placed to all individuals after a two-week period.

On March 8, 2018, all individuals were contacted by phone. Messages were left for Andrew Galvan of The Ohlone Indian Tribe, Ann Marie Sayers of the Indian Canyon Mutsun Band of Costanoan, and Katherine Perez of the North Valley Yokuts Tribe. Rosemary Cambra, of the Muwekma Ohlone Indian Tribe, did not answer the phone and her voicemail box was full; a second number listed for her was out of service. Tony Cerda of the Costanoan Rumsen Carmel tribe was driving when he answered, and requested the e-mail be re-sent for his review. Irenne Zwierlein of the Amah Mutsun Tribal Band of Mission San Juan Bautista requested that all crew be culturally trained, and requested that if an archaeologist was required to monitor, an Indian monitor should also be present.

Review of Geotechnical Borings

In April of 2018, three geotechnical borings were dug within the proposed generator building footprint. It is typically our policy to conduct archaeological monitoring of any subsurface exploration; however, the borings took place before Archeo-Tec began this study. A review of the geotechnical report, published on September 26, 2018, was thus conducted.

The report described fill soils atop alluvial deposits washed down via Alameda Creek from, most likely, the Hayward Hills. Though a comprehensive geoarchaeological study is outside the scope of this project, and no direct monitoring of the borings by an archaeologist took place, the boring logs are informative: approximately seven feet of fill overlies bay mud, and layers of alluvial deposits, silt, and clay, reflect a constantly changing geomorphology (Cal Engineering & Geology 2018).

Evidence of rubble was noted in the fill soils of the westernmost of the three borings: brick and sandstone at about four feet. This may represent modern rubble, however, it's possible that it is an older and potentially important archaeological deposit. The other two borings had concrete/gravel at shallower depths, suggesting modern rubble (Cal Engineering & Geology 2018).

No evidence of prehistoric cultural materials was apparent in any boring logs. Though large archaeological sites such as buried shellmounds are typically reflected in boring logs, it must be noted that though this absence does not preclude the presence of subsurface prehistoric cultural material within the area of impact that may exist outside the borings or have gone unnoted by geotechnical engineers.

Survey

A pedestrian survey was completed by Michelle Staley on March 7, 2018. Ms. Staley examined all unpaved and accessible surfaces within the Project area. No exposed ground in or around the Standby Power Generation System Upgrade project, nor anywhere else in the USD campus, yielded any evidence of potentially significant cultural resources or human remains.

Conclusions and Recommendations

No cultural resources were observed on the ground surface in or around the project area during the site survey. Historical research did not indicate any activities that took place in the era of Euro-American settlement likely to have deposited significant archaeological resources within the Project site; however, mapping was not continuous, nor did detailed mapping take place during early settlement of the general area. The geotechnical report noted brick and sandstone rubble within fill soils in the western portion of the site at about four feet below ground surface. Though these may represent modern rubble (concrete rubble was present at shallower depths in other borings), and there is no clear association with known historic use of the site, it is possible that this represents important historical period archaeological remains, and it is recommended that this area be monitored by an archaeologist.

The presence of prehistoric archaeological resources resulting from indigenous occupation appears unlikely. Prehistoric archaeological sensitivity is estimated based on environmental setting, proximity to nearby sites, and site stratigraphy. In terms of geographic setting, an area near a creek and near the bay is typically sensitive for prehistoric sites; in this case, however, the creek traversed mud flats, and historic maps show that its position shifted frequently, suggesting a dynamic ecosystem that continually disturbed and re-deposited soils.

The area is not located in close proximity to any prehistoric sites: the closest deposit, CA-ALA-326, is located one mile away. The closest area of known intensive indigenous settlement, the Coyote Hills, is located several miles away and in an environment that was more geographically stable. The known fluctuation of the creek across the mud flats suggests that, even if cultural deposits once existed within these layers, such deposits would have been disturbed by natural alluvial activity.

No soil descriptions suggesting prehistoric cultural materials were evident on the geotechnical boring logs. In addition, most impacts will take place within fill deposits. According to geotechnical reports, the site stratigraphy shows seven feet of fill directly over bay mud over a layer of alluvium; no evidence of prehistoric cultural materials are apparent in boring logs (Cal Engineering & Geology 2018). However, though such a case is extremely unlikely, the possibility of cultural materials existing within the Project area cannot be ruled out entirely: both fill and alluvial deposits impacted by piles could contain disturbed or re-deposited human remains.

It is recommended that archaeological monitoring take place during mass excavation of the western portion of the site; in this area, brick and sandstone rubble was noted in the geotechnical report, and there is a possibility that this represents a historically important deposit. Additionally, it is recommended that the soils emerging from pile drilling be spot-monitored (i.e., intermittently inspected by an on-site archaeologist).

Prior to the start of construction, it is recommended that an archaeological “Alert Sheet” be prepared and distributed to construction crews. The Alert Sheet outlines procedures for contacting an archaeologist in the event that unexpected archaeological resources are uncovered. Compliance with the California Health and Safety Code and California Public Resources Code as detailed below must be maintained. This Alert Sheet shall be distributed in a brief, on-site education session conducted by an archaeologist.

Once the Project’s construction plans have been finalized, the archaeologist to be retained by Union Sanitary District or the contractor will develop and implement a monitoring and reporting program. In brief, monitoring entails the observation of excavated soils to ensure that no potentially significant

archaeological resources are present; if resources are present, their potential significance would be evaluated and data would be recovered accordingly. If an archaeological deposit is found—whether during monitoring or through accidental discovery—it shall be assessed for potential significance. If the archaeologist identifies an intact and potentially significant archaeological resource, he or she shall develop a treatment plan in consultation with the Union Sanitary District, the SWRCB, tribal representatives (in the event of a prehistoric site) and the State Historic Preservation Officer (SHPO). This plan would likely entail a program of systematic data recovery in which cultural materials are documented and removed.

Procedures Regarding Discovery of Human Remains

If human remains are encountered, the following procedures will be implemented:

a. Per the stipulations of the California Health and Safety Code Section 7050.5(b), the Alameda County Coroner's Office will be contacted immediately; this will occur whether or not a Most Likely Descendant has already been appointed.
b. The Coroner's Office has two working days in which to examine the identified remains. If the Coroner determines that the remains are Native American, then—if a Most Likely Descendant has not yet been appointed—the Office will notify the Native American Heritage Commission (NAHC) within 24 hours.
c. Following receipt of the Coroner's Office notice, the NAHC will contact a Most Likely Descendant. The Most Likely Descendant then has 48 hours in which they can make recommendations to the project sponsor and consulting archaeologist regarding the treatment and/or re-interment of the human remains and any associated grave goods.
d. Appropriate treatment and disposition of Native American human remains and associated grave goods will be collaboratively determined in consultation between the appointed Most Likely Descendant, the consulting archaeologist, and the landowner or authorized representative. The treatment of human remains may potentially include the preservation, excavation, analysis and/or reburial of those remains and any associated artifacts.
e. If the remains are determined not to be Native American, the Coroner, archaeological research team, and USD will collaboratively develop a procedure for the appropriate study, documentation, and ultimate disposition of the historic human remains.

Works Cited

Banks, P., and D.A. Fredrickson

1977 *An Archaeological Investigation of Project #3, Zone 5 and Zone 6 of the Alameda County Flood Control and Water Conservation District.* Unpublished report on file at the Northwest Information Center, Rohnert Park, California.

Banks, P.M.

1985 *Mitigation Measures at CA-ALA-12 and -13, Alameda County, California*. Unpublished report on file at the Northwest Information Center, Rohnert Park, California.

Banks, Peter

1977 Archaeological Site Record for CA-ALA-328. Unpublished report on file at the Northwest Information Center, Rohnert Park.

Bolton, H.E.

1933 Font's Complete Diary. In *A Chronicle of the Founding of San Francisco*. University of California Press Berkeley, California.

Bowden, Jennifer C.

2012 *San Jose/Santa Clara Water Pollution Control Plant Master Plan Cultural Resources Survey Report*. Report from Environmental Science Associates, San Francisco, to the City of San Jose Planning Division, San Jose.

Broadbent, Sylvia M.

1972 The Rumsen of Monterey: An Ethnography from Historical Sources. In *Miscellaneous Papers on Archaeology*, pp. 45–93. University of California Archaeological Research Facility Contributions. Archaeological Research Facility, Dept. of Anthropology, University of California, Berkeley.

Cal Engineering & Geology

2018 *Draft Geotechnical Design Report, Union Sanitary District Standby Generator Building*. Unpublished report on file at Brown and Caldwell.

Chavez, David

1992 *Archaeological Resources Investigations for the Union Sanitary District Master Plan EIR, Alameda County, California*. Unpublished report prepared for Environmental Science Associates.

Clark, M.R., R.S. Wiberg, and M.P. Holman

1984 *1983 Archaeological Invesigations and Construction Monitoring in Coyote Hills Regional Park, Alameda County, California.* Unpublished report on file at the Northwest Information Center, Rohnert Park, California.

Coberly, Mary

1973 *The Archaeology of the Ryan Mound, Site ALA-329 A Central California Coastal Village Site*. *Occasional Publications in Anthropology Archaeology Series Number 4*. Vol. 4. Prepared by the Museum of Anthropology University of Northern Colorado, Greeley, CO.

Cook, Sherburne F.1943 The Conflict between the California Indian and White Civilization. *Ibero-Americana* 22.

1957 The Aboriginal Population of Alameda and Contra Costa Counties. *University of California Anthropological Records* 16(4). University of California, Berkeley:131–180.

Crespi, Juan

1927 *Fray Juan Crespi, Missionary Explorer on the Pacific Coast, 1769-1774*. , editorRobert E. Bolton. University of California Press, Berkeley and Los Angeles, California.

Davis, James T.

1961 Trade Routes and Economic Exchange among the Indians of California. *Reports of the University of California Archaeological Survey* 54(1–71):23.

Fenenga, and F. Rackerby

1965 Archaeological Site Record for CA-ALA-12. Unpublished report on file at the Northwest Information Center, Rohnert Park.

Follett, W. I.

1975 Fish Remains from the West Berkeley Shellmound (CA-ALA-307), Alameda County, California. *Contributions of the University of California Archaeological Research Facility* 29:71–98.

Font, P.

1930 Font's Complete Diary of the Second Anza Expedition. In *Anza's California Expeditions*, H.E. Bolton, editor. University of California Press, Berkeley.

1933 *Font's Complete Diary: A Chronicle of the Founding of San Francisco, 1775-1776*. , editorH.E. Bolton. University of California Press, Berkeley.

Galvan, P. Michael

1968 People of the West: The Ohlone Story. *The Indian Historian* 1(2):9–13.

Garaventa, D.M., M. Fong, S.A. Guedon, S.A. Jarvis, D.G. Brittin, and S.A. Rossa

1991 *Cultural Resources Assessment for a General Plan Amendment of the Ardenwood Forest Completion, Fremont, Alameda County, California.* Unpublished report on file at the Northwest Information Center, Rohnert Park, California.

Harrington, J. P.

1921 Chochenyo Fieldnotes, 1921. In *Survey of California Indian Languages*. Department of Linguistics, University of California, Berkeley.

1933 Report of Fieldwork. In *49th Annual Report of the Bureau of American Ethnology for the Years 1931-1932*, pp. 2–3. Washington D.C.

Heizer, Robert F., and William C. Massey

1953 Aboriginal Navigation off the Coasts of Upper and Baja California. *Anthropological Papers 39, Bureau of American Ethnology Bulletin* 151(285–312):285–312.

Heizer, Robert F., and Adan E. Treganza

1972 *Mines and Quarries of the Indians of California*. Ballena Press, Ramona, California.

Hendry, G. W., and J. N. Bowman

1940 *The Spanish and Mexican Adobe and Other Buildings in the Nine San Francisco Bay Counties: 1776 to about 1850.* University of California, Berkeley.

Jackson, T.L.

1973 *An Archaeological Impact Evaluation of the Proposed East Bay Dischargers Water Quality Management Interceptor Pipeline*. Unpublished report on file at the Northwest Information Center, Rohnert Park, California.

Justesen, Elaine A.G.

1991 John M. Horner. Provo. https://www.boap.org/LDS/Early-Saints/John_Horner.html.

Kroeber, A. L.

1925 *Handbook of California Indians*. Smithsonian Institution, Washington D.C.

1962 The Nature of Land-Holding Groups in Aboriginal California. In *Two Papers on the Aboriginal Ethnography of California*, D.H. Humes and Robert F. Heizer, editors, pp. 19–58. Reports of the University of California Archaeological Survey 56.

Levy, Richard

1978 Costanoan. In *Handbook of North American Indians*, R. F. Heizer, editor, VIII: Smithsonian Institution, Washington D.C.

Lewis, Henry T.

1973 *Patterns of Indian Burning in California: Ecology and Ethnohistory*. Ballena Press Publications in Anthropology 1, Ramona, California.

Mason, John Alden

1916 The Mutsun Dialect of Costanoan Based on the Vocabulary of de La Cuesta. *University of California Publications in American Archaeology and Ethnology* 11(7):399–472.

Merriam, C. Hart

1967 Ethnographic Notes of California Indian Tribes. In *Reports of the University of California Archaeological Survey 68*, Robert Fleming Heizer, editor, pp. 3, 293–294. Berkeley.

Milliken, Randall

1995 *A Time of Little Choice: The Disintegration of Tribal Culture in the San Francisco Bay Area 1769-1810*. Ballena Press Anthropological Papers. Ballena Press, Menlo Park.

Milliken, Randall, Laurence H Shoup, Beverly R Ortiz, and Archaeological and Historical Consultants

2009 *Ohlone/Costanoan Indians of the San Francisco Peninsula and Their Neighbors, Yesterday and Today*. National Park Service, Golden Gate National Recreation Area, San Francisco.

Nelson, N. C.

1909 Shellmounds of the San Francisco Bay Region. *University of California Publications in American Archaeology and Ethnology* 7(4). University of California Publications in American Arcaheology and

Ethnology. University of California Press, Berkeley:310–357.

Nelson, Nels C.

1909 *The California Coast from the Russian River to the Golden Gate: Transcript of Archaeological Reconnaissance Notes by N.C. Nelson*. Typed by Ann Iturralde.

Nickel, Nancy A.

1978 Looking Back: Early Glimpses of Union City. In . City of Union City, Union City. http://museumoflocalhistory.org/wordpress2/wp-content/uploads/2014/10/LookingBack.pdf.

Origer, Thomas M.

1992 *An Archaeological Survey for the Union Sanitary District Alvarado Wastewater Treatment Plant Upgrade Project, Union City, Alameda County, California*. Cotati.

Palou, F.

1924 (Description of the Indians in the Vicinity of Mission San Francisco, 1776). In *San Francisco or Mission Dolores*, Z. Engelhardt, editor. Franciscan Herald Press, Chicago.

Phelps, William Dane

1983 *Alta California 1840-1842 The Journal and Observations of William Dane Phelps Master of the Ship "Alert."* Briton Cooper Busch, Glendale.

Rackerby, F., and J Whelan

1967 The Archaeological Salvage of Two San Francisco Bay Shellmounds. *Occasional Papers in Anthropology*(3).

Rackerby, Frank

1965 Archaeological Site Record for CA-ALA-341. Unpublished report on file at the Northwest Information Center, Rohnert Park.

Sanborn-Perris Map Company

1896 Insurance Maps of Alvarado, Alameda County, California. Sanborn-Perris Map Company, New York.

Sanborn Map Company

1944 Insurance Maps of Alavardo, Alameda County, California. New York and San Francisco.

Shipley, W.F.

1978 Native Languages of California. In *Handbook of North American Indians, Vol. 8, California*, R.F. Heizer, editor. Smithsonian Institution, Washington, D.C.

Swenson, Timothy

2008 *Images of America: Union City*. Arcadia Publishing, Charlston.

2009 Alvarado (New Haven & Union City), 1850-1870. *Museum of Local History*`. http://museumoflocalhistory.org/wordpress2/wp-content/uploads/2014/10/alv1850.pdf.

Union Sanitary District2016 Alvarado Treatment Plant. *Http://Www.Unionsanitary.Com*. https://www.unionsanitary.com/about-us/alvarado-treatment-plant.

United States Geological Survey

2008 Shake Map for the 1868 Hayward Earthquake. U.S. Department of the Interior and U.S. Geological Survey. https://pubs.usgs.gov/of/2008/1121/1868_Intensity_Maps/1868_BA/1868_BA.html.

Appendix I: Native American Correspondence

ARCHEO-TEC
CONSULTING ARCHAEOLOGISTS

Debbie Pilas-Treadway
Native American Heritage Commission
1550 Harbor Blvd, Suite 100
West Sacramento, California 95691

January 29, 2018

Subject: **Sacred Lands File & Native American Contacts List Request for Union Sanitary District Emergency Outfalls/Standby Power/Digester 7 Project, located in Union City, Alameda County, California**

Dear Ms. Pilas-Treadway:

I am writing with regard to the proposed Union Sanitary District Emergency Outfalls/Standby Power/Digester 7 Project, located in Union City, Alameda County, California. Archeo-Tec is performing a Phase I archaeological study of the Project at the request of its sponsor, Union Sanitary District (USD).

The proposed Project consists of three areas of impact within the Union Sanitary District's facility. Renovations to an **Emergency Outfall** gate opening to Alameda Creek in the northwest corner of the USD facility would entail ground disturbance to a maximum of 11 feet within and around the outfall's footprint. The **Standby Power Generation System Upgrade** would construct an approximately 220- by 100-foot generator building with a depth of impact of 6 feet below surface just east of the outfalls. Associated pipeline trenches would reach 3-4 feet below surface. **Digester 7** is a proposed new digester in the western portion of the USD facility. Excavation would reach a depth of 40 feet; associated pipelines would reach a maximum depth of 4 feet.

Attached please find a map of the project area. The property is located on the "Newark, CA" 7.5-minute USGS and within Township 4S, Range 2W (Mount Diablo Meridian).

Please review the Sacred Lands File and notify us of any sacred lands that would be affected by the Project, as well as individuals or groups whom we should contact. As always, we can accept the results by email at archeo-tec@archeo-tec.com or by fax at (510) 858-7248.

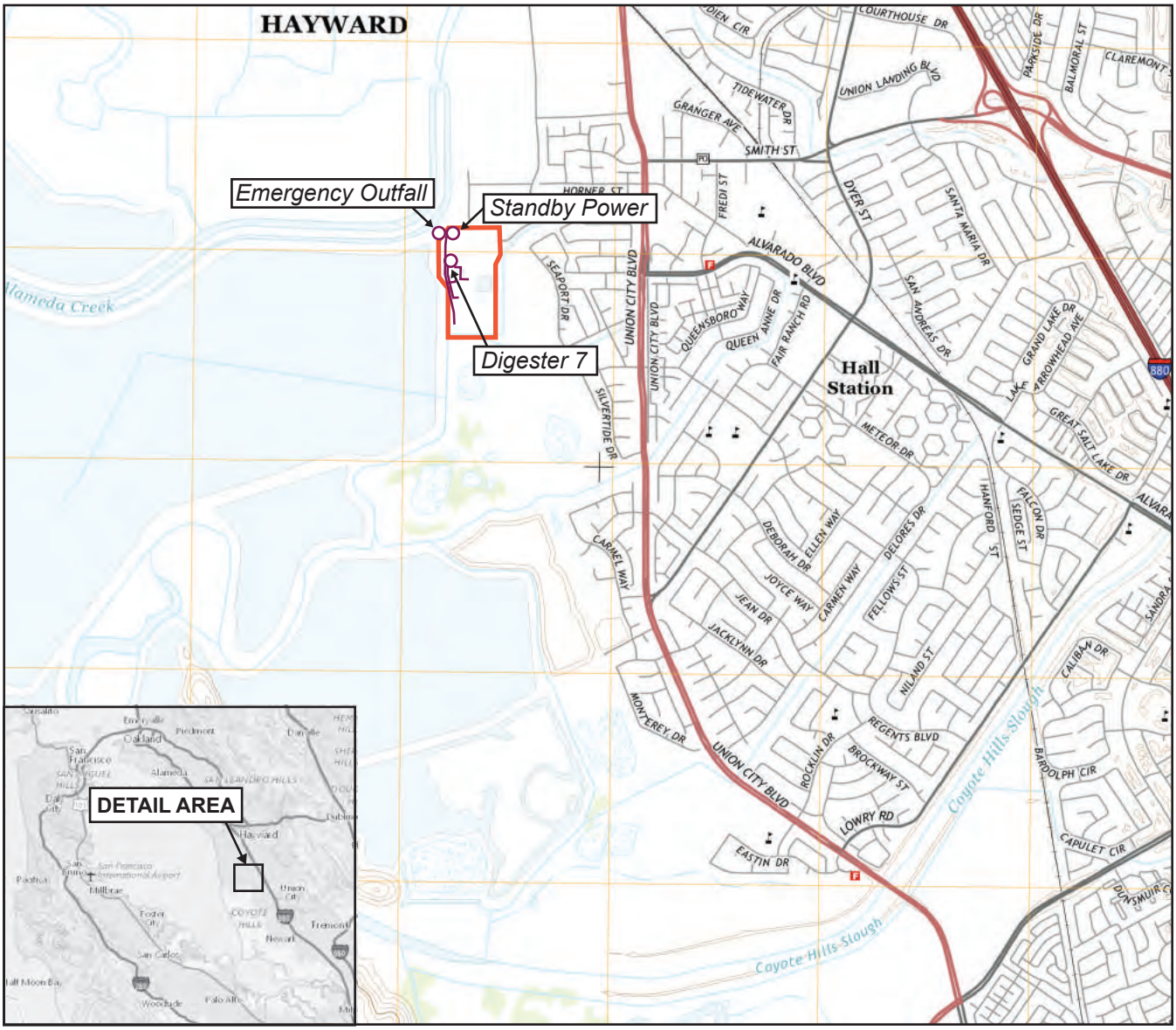
Sincerely,

Emily Wick
Archeo-Tec Consulting Archaeologists

ARCHEO-TEC
CONSULTING ARCHAEOLOGISTS

Union Sanitary District Project Location Map

January 29, 2018



Images: USGS.gov

Detail from Newark Quadrangle, 7.5 Minute Map CA 2015

SCALE 1:24 000

1 0.5 0 KILOMETERS 1 2

1000 500 0 METERS 1000 2000

1 0.5 0 1

MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000

FEET

Area of Potential Effects: USD Campus

Approximate Excavation Locations

NATIVE AMERICAN HERITAGE COMMISSION
Environmental and Cultural Department
1550 Harbor Blvd., ROOM 100
West SACRAMENTO, CA 95691
(916) 373-3710
Fax (916) 373-5471

February 20, 2018

Emily Wick
Archeo-Tec Consulting Archaeologist

Email to: archeo-tec@archeo-tec.com

RE: Union Sanitary District Project, Alameda County

Dear Ms. Wick,

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not preclude the presence of cultural resources in any project area. Other sources for cultural resources should also be contacted for information regarding known and/or recorded sites.

Enclosed is a list of Native Americans tribes who may have knowledge of cultural resources in the project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these tribes, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at 916-573-1033 or frank.lienert@nahc.ca.gov.

Sincerely,

Frank Lienert
Associate Governmental Program Analyst

Native American Heritage Commission
Native American Contacts
2/20/2018

Coastanoan Rumsen Carmel Tribe
Tony Cerda, Chairperson
244 E. 1st Street
Pomona , CA 91766
rumsen@aol.com
(909) 524-8041 Cell
(909) 629-6081
Ohlone/Costanoan

Indian Canyon Mutsun Band of Costanoan
Ann Marie Sayers, Chairperson
P.O. Box 28
Hollister , CA 95024
ams@indiancanyon.org
(831) 637-4238
Ohlone/Costanoan

Amah MutsunTribal Band of Mission San Juan Bautista
Irenne Zwierlein, Chairperson
789 Canada Road
Woodside , CA 94062
amahmutsuntribal@gmail.com
(650) 851-7489 Cell
(650) 851-7747 Office
(650) 332-1526 Fax
Ohlone/Costanoan

North Valley Yokuts Tribe
Katherine Erolinda Perez, Chairperson
P.O. Box 717
Linden , CA 95236
canutes@verizon.net
(209) 887-3415
Ohlone/Costanoan
Northern Valley Yokuts
Bay Miwok

Muwekma Ohlone Indian Tribe of the SF Bay Area
Rosemary Cambra, Chairperson
P.O. Box 360791
Milpitas , CA 95036
muwekma@muwekma.org
(408) 314-1898
(510) 581-5194
Ohlone / Costanoan

The Ohlone Indian Tribe
Andrew Galvan
P.O. Box 3152
Fremont , CA 94539
chochenyo@AOL.com
(510) 882-0527 Cell
(510) 687-9393 Fax
Ohlone/Costanoan
Bay Miwok
Plains Miwok
Patwin

This list is current only as of the date of this document and is based on the information available to the Commission on the date it was pr oduced.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native American Tribes with regard to cultural resources assessments for the proposed Union Sanitary District Project, Alameda County

Subject: Union Sanitary District Projects, Union City
From: Archeo-Tec <archeo-tec@archeo-tec.com>
Date: 2/22/2018 4:09 PM
To: rumsen@aol.com
BCC: sent@archeo-tec.com

Dear Chairperson Cerda,

I am writing with regard to a trio of proposed projects within Union Sanitary District's facility in Union City, Alameda County, California. One of the projects (Emergency Outfall Improvements Project) is subject to Section 106 regulations because it would affect a navigable waterway, and therefore requires a permit from U.S. Army Corps of Engineers.

The three proposed projects are all located within the existing Union Sanitary District (USD) facility, which is shown on the attached map. Renovations to an **Emergency Outfall** gate opening to Alameda Creek in the northwest corner of the USD facility would entail ground disturbance to a maximum of 11 feet within and around the outfall's footprint. The **Standby Power Generation System Upgrade Project** would construct an approximately 220- by 100-foot generator building with a depth of impact of 6 feet below surface just east of the outfalls. Associated pipeline trenches would reach 3-4 feet below surface. Finally, the **Digester 7 Project** would construct a new digester in the western portion of the USD facility. Excavation would reach a depth of 40 feet; associated pipelines would reach a maximum depth of 4 feet.

A records search at the Northwest Information Center (NWIC) found one archaeological site located approximately one mile east of the Project: one of Nelson's shellmounds, which appears to have not been investigated as it does not have a site record. No other archaeological sites are recorded within one mile of the Project.

We have already contacted the Native American Heritage Commission and a search of the sacred lands file has failed to indicate the presence of Native American cultural resources in the immediate project area. We are interested to know if you have information about culturally significant resources on this site, or can recommend others who might share such information. Please send any response you may have within the next 30 days.

Sincerely,
Michelle Staley

Archeo-Tec
5283 Broadway
Oakland, CA 94618
(510) 601-6185 phone
(510) 858-7248 fax

Attachments:

USD Projects Location Map.pdf 7.3 MB

Subject: Fwd: Union Sanitary District Projects, Union City
From: Archeo-Tec <archeo-tec@archeo-tec.com>
Date: 3/8/2018 2:51 PM
To: Tony Cerda <rumsen@aol.com>

Dear Chairperson Cerda,

We just spoke on the phone about the Union Sanitary District projects discussed below, and you were particularly concerned that the Digester 7 Project would entail excavation up to 40 feet. Please have a look at these projects and let me know your thoughts or if you have additional questions.

Sincerely,

Michelle

-------- Forwarded Message --------
Subject: Union Sanitary District Projects, Union City
Date: Thu, 22 Feb 2018 16:09:55 -0800
From: Archeo-Tec <archeo-tec@archeo-tec.com>
To:rumsen@aol.com

Dear Chairperson Cerda,

I am writing with regard to a trio of proposed projects within Union Sanitary District's facility in Union City, Alameda County, California. One of the projects (Emergency Outfall Improvements Project) is subject to Section 106 regulations because it would affect a navigable waterway, and therefore requires a permit from U.S. Army Corps of Engineers.

The three proposed projects are all located within the existing Union Sanitary District (USD) facility, which is shown on the attached map. Renovations to an **Emergency Outfall** gate opening to Alameda Creek in the northwest corner of the USD facility would entail ground disturbance to a maximum of 11 feet within and around the outfall's footprint. The **Standby Power Generation System Upgrade Project** would construct an approximately 220- by 100-foot generator building with a depth of impact of 6 feet below surface just east of the outfalls. Associated pipeline trenches would reach 3-4 feet below surface. Finally, the **Digester 7 Project** would construct a new digester in the western portion of the USD facility. Excavation would reach a depth of 40 feet; associated pipelines would reach a maximum depth of 4 feet.

A records search at the Northwest Information Center (NWIC) found one archaeological site located approximately one mile east of the Project: one of Nelson's shellmounds, which appears to have not been investigated as it does not have a site record. No other archaeological sites are recorded within one mile of the Project.

We have already contacted the Native American Heritage Commission and a search of the sacred lands file has failed to indicate the presence of Native American cultural resources in the immediate project area. We are interested to know if you have information about culturally significant resources on this site, or can recommend others who might share such information. Please send any response you may have within the next 30 days.

Sincerely,
Michelle Staley

Archeo-Tec
5283 Broadway
Oakland, CA 94618
(510) 601-6185 phone
(510) 858-7248 fax

Attachments:

USD Projects Location Map.pdf 7.3 MB

Subject: Union Sanitary District Projects, Union City
From: Archeo-Tec <archeo-tec@archeo-tec.com>
Date: 2/22/2018 4:11 PM
To: Amah Mutsun TB of Mission SJB <amahmutsuntribal@gmail.com>
BCC: sent@archeo-tec.com

Dear Chairperson Zwierlein,

I am writing with regard to a trio of proposed projects within Union Sanitary District's facility in Union City, Alameda County, California. One of the projects (Emergency Outfall Improvements Project) is subject to Section 106 regulations because it would affect a navigable waterway, and therefore requires a permit from U.S. Army Corps of Engineers.

The three proposed projects are all located within the existing Union Sanitary District (USD) facility, which is shown on the attached map. Renovations to an **Emergency Outfall** gate opening to Alameda Creek in the northwest corner of the USD facility would entail ground disturbance to a maximum of 11 feet within and around the outfall's footprint. The **Standby Power Generation System Upgrade Project** would construct an approximately 220- by 100-foot generator building with a depth of impact of 6 feet below surface just east of the outfalls. Associated pipeline trenches would reach 3-4 feet below surface. Finally, the **Digester 7 Project** would construct a new digester in the western portion of the USD facility. Excavation would reach a depth of 40 feet; associated pipelines would reach a maximum depth of 4 feet.

A records search at the Northwest Information Center (NWIC) found one archaeological site located approximately one mile east of the Project: one of Nelson's shellmounds, which appears to have not been investigated as it does not have a site record. No other archaeological sites are recorded within one mile of the Project.

We have already contacted the Native American Heritage Commission and a search of the sacred lands file has failed to indicate the presence of Native American cultural resources in the immediate project area. We are interested to know if you have information about culturally significant resources on this site, or can recommend others who might share such information. Please send any response you may have within the next 30 days.

Sincerely,
Michelle Staley

Archeo-Tec
5283 Broadway
Oakland, CA 94618
(510) 601-6185 phone
(510) 858-7248 fax

Attachments:

USD Projects Location Map.pdf 7.3 MB

Subject: Union Sanitary District Projects, Union City
From: Archeo-Tec <archeo-tec@archeo-tec.com>
Date: 2/22/2018 4:26 PM
To: Katherine Erolinda Perez <canutes@verizon.net>
BCC: sent@archeo-tec.com

Dear Chairperson Perez,

I am writing with regard to a trio of proposed projects within Union Sanitary District's facility in Union City, Alameda County, California. One of the projects (Emergency Outfall Improvements Project) is subject to Section 106 regulations because it would affect a navigable waterway, and therefore requires a permit from U.S. Army Corps of Engineers.

The three proposed projects are all located within the existing Union Sanitary District (USD) facility, which is shown on the attached map. Renovations to an **Emergency Outfall** gate opening to Alameda Creek in the northwest corner of the USD facility would entail ground disturbance to a maximum of 11 feet within and around the outfall's footprint. The **Standby Power Generation System Upgrade Project** would construct an approximately 220- by 100-foot generator building with a depth of impact of 6 feet below surface just east of the outfalls. Associated pipeline trenches would reach 3-4 feet below surface. Finally, the **Digester 7 Project** would construct a new digester in the western portion of the USD facility. Excavation would reach a depth of 40 feet; associated pipelines would reach a maximum depth of 4 feet.

A records search at the Northwest Information Center (NWIC) found one archaeological site located approximately one mile east of the Project: one of Nelson's shellmounds, which appears to have not been investigated as it does not have a site record. No other archaeological sites are recorded within one mile of the Project.

We have already contacted the Native American Heritage Commission and a search of the sacred lands file has failed to indicate the presence of Native American cultural resources in the immediate project area. We are interested to know if you have information about culturally significant resources on this site, or can recommend others who might share such information. Please send any response you may have within the next 30 days.

Sincerely,
Michelle Staley

Archeo-Tec
5283 Broadway
Oakland, CA 94618
(510) 601-6185 phone
(510) 858-7248 fax

Attachments:

USD Projects Location Map.pdf 7.3 MB

Subject: Union Sanitary District Projects, Union City
From: Archeo-Tec <archeo-tec@archeo-tec.com>
Date: 2/22/2018 4:14 PM
To: Rosemary Cambra <muwekma@muwekma.org>
BCC: sent@archeo-tec.com

Dear Chairperson Cambra,

I am writing with regard to a trio of proposed projects within Union Sanitary District's facility in Union City, Alameda County, California. One of the projects (Emergency Outfall Improvements Project) is subject to Section 106 regulations because it would affect a navigable waterway, and therefore requires a permit from U.S. Army Corps of Engineers.

The three proposed projects are all located within the existing Union Sanitary District (USD) facility, which is shown on the attached map. Renovations to an **Emergency Outfall** gate opening to Alameda Creek in the northwest corner of the USD facility would entail ground disturbance to a maximum of 11 feet within and around the outfall's footprint. The **Standby Power Generation System Upgrade Project** would construct an approximately 220- by 100-foot generator building with a depth of impact of 6 feet below surface just east of the outfalls. Associated pipeline trenches would reach 3-4 feet below surface. Finally, the **Digester 7 Project** would construct a new digester in the western portion of the USD facility. Excavation would reach a depth of 40 feet; associated pipelines would reach a maximum depth of 4 feet.

A records search at the Northwest Information Center (NWIC) found one archaeological site located approximately one mile east of the Project: one of Nelson's shellmounds, which appears to have not been investigated as it does not have a site record. No other archaeological sites are recorded within one mile of the Project.

We have already contacted the Native American Heritage Commission and a search of the sacred lands file has failed to indicate the presence of Native American cultural resources in the immediate project area. We are interested to know if you have information about culturally significant resources on this site, or can recommend others who might share such information. Please send any response you may have within the next 30 days.

Sincerely,
Michelle Staley

Archeo-Tec
5283 Broadway
Oakland, CA 94618
(510) 601-6185 phone
(510) 858-7248 fax

Attachments:

USD Projects Location Map.pdf 7.3 MB

Subject: Union Sanitary District Projects, Union City
From: Archeo-Tec <archeo-tec@archeo-tec.com>
Date: 2/22/2018 4:16 PM
To: Andy Galvan <chochenyo@aol.com>
BCC: sent@archeo-tec.com

Dear Mr. Galvan,

I am writing with regard to a trio of proposed projects within Union Sanitary District's facility in Union City, Alameda County, California. One of the projects (Emergency Outfall Improvements Project) is subject to Section 106 regulations because it would affect a navigable waterway, and therefore requires a permit from U.S. Army Corps of Engineers.

The three proposed projects are all located within the existing Union Sanitary District (USD) facility, which is shown on the attached map. Renovations to an **Emergency Outfall** gate opening to Alameda Creek in the northwest corner of the USD facility would entail ground disturbance to a maximum of 11 feet within and around the outfall's footprint. The **Standby Power Generation System Upgrade Project** would construct an approximately 220- by 100-foot generator building with a depth of impact of 6 feet below surface just east of the outfalls. Associated pipeline trenches would reach 3-4 feet below surface. Finally, the **Digester 7 Project** would construct a new digester in the western portion of the USD facility. Excavation would reach a depth of 40 feet; associated pipelines would reach a maximum depth of 4 feet.

A records search at the Northwest Information Center (NWIC) found one archaeological site located approximately one mile east of the Project: one of Nelson's shellmounds, which appears to have not been investigated as it does not have a site record. No other archaeological sites are recorded within one mile of the Project.

We have already contacted the Native American Heritage Commission and a search of the sacred lands file has failed to indicate the presence of Native American cultural resources in the immediate project area. We are interested to know if you have information about culturally significant resources on this site, or can recommend others who might share such information. Please send any response you may have within the next 30 days.

Sincerely,
Michelle Staley

Archeo-Tec
5283 Broadway
Oakland, CA 94618
(510) 601-6185 phone
(510) 858-7248 fax

Attachments:

USD Projects Location Map.pdf 7.3 MB

Subject: Union Sanitary District Projects, Union City
From: Archeo-Tec <archeo-tec@archeo-tec.com>
Date: 2/22/2018 4:18 PM
To: Ann Marie Sayers <ams@indiancanyon.org>
BCC: sent@archeo-tec.com

Dear Chairperson Sayers,

I am writing with regard to a trio of proposed projects within Union Sanitary District's facility in Union City, Alameda County, California. One of the projects (Emergency Outfall Improvements Project) is subject to Section 106 regulations because it would affect a navigable waterway, and therefore requires a permit from U.S. Army Corps of Engineers.

The three proposed projects are all located within the existing Union Sanitary District (USD) facility, which is shown on the attached map. Renovations to an **Emergency Outfall** gate opening to Alameda Creek in the northwest corner of the USD facility would entail ground disturbance to a maximum of 11 feet within and around the outfall's footprint. The **Standby Power Generation System Upgrade Project** would construct an approximately 220- by 100-foot generator building with a depth of impact of 6 feet below surface just east of the outfalls. Associated pipeline trenches would reach 3-4 feet below surface. Finally, the **Digester 7 Project** would construct a new digester in the western portion of the USD facility. Excavation would reach a depth of 40 feet; associated pipelines would reach a maximum depth of 4 feet.

A records search at the Northwest Information Center (NWIC) found one archaeological site located approximately one mile east of the Project: one of Nelson's shellmounds, which appears to have not been investigated as it does not have a site record. No other archaeological sites are recorded within one mile of the Project.

We have already contacted the Native American Heritage Commission and a search of the sacred lands file has failed to indicate the presence of Native American cultural resources in the immediate project area. We are interested to know if you have information about culturally significant resources on this site, or can recommend others who might share such information. Please send any response you may have within the next 30 days.

Sincerely,
Michelle Staley

Archeo-Tec
5283 Broadway
Oakland, CA 94618
(510) 601-6185 phone
(510) 858-7248 fax

Attachments:

USD Projects Location Map.pdf 7.3 MB

APPENDIX F

Noise and Vibration Technical Report

Union Sanitary District

Standby Power Generation System Upgrade Project

Union City, CA

Environmental Noise and Vibration Impact Technical Background Report

16 January 2019

Prepared for:

Donna Rammell, PE
Brown and Caldwell
201 N Civic Drive, #300
Walnut Creek, CA 94596
Email: drammell@brwncald.com

Prepared by:

Charles M. Salter Associates, Inc.
Jeremy L. Decker, PE
130 Sutter Street, Floor 5
San Francisco, CA 94104
Phone: 415.397.0442
Email: Jeremy.Decker@cmsalter.com

Salter Project Number: 18-0696

INTRODUCTION

This technical background report presents the results of our noise and vibration impact assessment for the Union Sanitary District Standby Power Generation System Upgrade Project in Union City, California. It summarizes the policies and standards applicable to the Project, noise data obtained from our on-site acoustical measurements, and our evaluation of potential noise impacts resulting from the Project on existing land-uses. Those readers not familiar with the fundamental concepts of environmental noise may refer to Appendix A.

PROJECT DESCRIPTION AND SETTING

The Project primarily consists of a new electrical power generator building with two generators along with accessory HVAC, fuel storage, and space for future battery facilities. The USD site is located in Union City near the eastern shore of the San Francisco Bay. The site is bound to the east, west, and south by open space. To the north, the land is zoned as "light industrial," though it appears to have some residences within the light industrial zone. A potential religious facility might also be located in this light industrial zone. Additional residential developments are located to the east and northeast of the site, greater than 1,000 feet from the proposed equipment.

SUMMARY

It is expected that Project noise can be reduced to meet the City noise standards and avoid a significant increase in ambient noise at the surrounding noise-sensitive receptors. Based on the analysis and assumptions regarding future Project equipment, the following table summarizes the level of mitigation that would be needed. An updated noise analysis should be performed during the design phase as the equipment selections and designs are refined to confirm the details of necessary noise mitigation.

Table 1: Summary of Project equipment noise mitigation needed (see Mitigation 1 below).

Project design feature	Mitigation Measure Summary
Building envelope to enclose generators	Minimum composite sound transmission loss equivalent to STC[1] 37 with sound attenuators on ventilation openings
Generator engine exhaust muffler	Minimum effective sound insertion loss of 35 dB[2] (A-weighted)
Building exhaust fan noise	Fans are to be located behind a rooftop noise barrier screen or inside the building with sound attenuators at the fan discharge with measures listed above
Outdoor HVAC equipment noise	Enclosed by noise barrier wall, minimum 2 feet taller than the HVAC equipment

[1] Sound Transmission Class (STC) — A single-number rating standardized by ASTM that is derived from laboratory sound insulation measurements building elements (e.g., doors, walls, and floor-ceiling assemblies). Increasing STC ratings indicate improved sound insulation and less transmitted noise.

[2] dB (Decibel) – A unit that describes the magnitude of a sound with respect to a reference sound level near the threshold of hearing. Decibels are based on a logarithmic scale and therefore cannot be added arithmetically. All sound levels listed in this report are A-weighted (unless specified otherwise). A weighting is a standard weighting that accounts for the sensitivity of human hearing to the range of audible frequencies. People perceive a 10 dB increase in sound level to be twice as loud.

ACOUSTICAL CRITERIA

The State of California and the City of Union City establish guidelines, regulations, and policies designed to limit noise exposure at noise sensitive land uses. State CEQA guidelines set forth criteria that are used to determine whether a Project will have a significant impact on the existing environment. Local City regulations address transmission to adjacent properties.

State – CEQA Guidelines and Impact Criteria

The California Environmental Quality Act (CEQA) contains guidelines to evaluate the significance of noise attributable to a proposed Project, primarily equipment and construction noise. CEQA asks the following applicable questions related to noise and vibration (CEQA Guidelines Appendix G). Would the Project:

1. Expose people to or generate noise levels in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies;
2. Expose people to or generate excessive groundborne vibration or groundborne noise levels;
3. Result in a substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project;
4. Result in a substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project;

Local – Union City General Plan

The latest published draft of the Safety Element (dated 6 June 2018) of the Union City 2040 General Plan includes policies applicable to the Project as listed below. Though this document is not yet adopted, the related policies are referenced here for consideration.

Table 2 (excerpt from Table S-8.1): Exterior Noise Exposure Standards for New Development

Land Use Type	**Highest Level of Exterior Noise Exposure that is Regarded as "Normally Acceptable" (DNL)**
Residential: Single-Family Homes, Duplex, Mobile Home	60
Residential: Townhomes and Multi-Family Apartments, Mixed use, Condominiums	65
Churches	60
Industrial	75

- Policy S-8.7: Reduce Impacts from New Noise Generating Uses. The City may require operational limitations and implementation of noise buffering measures for new uses with the potential to generate significant noise (including, but not limited to, industrial uses, auditoriums, concert halls, amphitheaters, sports arenas, outdoor spectator sports fields, and outdoor spectator sports) near existing noise sensitive land uses as identified in Policy S-8.1. A noise impact analysis may be required to evaluate potential noise impacts and identify appropriate buffering measures.

- Policy S-8.10: Enforce Community Noise Ordinance. The City shall strive to reduce the negative effects of noise sources through the enforcement of the Community Noise Ordinance.

Local – Union City Noise Ordinance

Chapter 9.40 of the Union City Municipal Code includes the following noise standards:

9.40.041 Residential property noise limits.
No person shall produce, suffer or allow to be produced by any machine, animal or device, or any combination of same, on residential property, a noise level more than ten (10) dBA above the local ambient at any point outside of the property plane.

9.40.042 Commercial and industrial property noise limits. No person shall produce, suffer or allow to be produced by any machine or device, or any combination of same, on commercial or industrial property, a noise level more than twelve dBA above the local ambient at any point outside of the property line.

9.40.043 Public property noise limits.

A. No person shall produce, suffer or allow to be produced by any machine or device, or any combination of same, on public property, a noise level more than fifteen dBA above the local ambient at a distance of twenty-five feet or more, unless otherwise provided in this chapter.
B. Sound performances and special events not exceeding eighty dBA measured at a distance of fifty feet are exempt from this chapter when approval therefore has been obtained from the appropriate governmental entity, except as provided elsewhere in this Code.
C. Vehicle horns, or other devices primarily intended to create a loud noise for warning purposes, shall not be used when the vehicle is at rest, or when a situation endangering life, health, or property is not imminent.

9.40.050 Daytime exceptions.
Any noise source which does not produce a noise level exceeding seventy dBA at a distance of twenty-five feet from the noise source under its most noisy condition of use shall be exempt from the provisions of Article 4 between the hours of eight a.m. and eight p.m. daily except Sundays and holidays, when the exemption herein shall apply between ten a.m. and six p.m.

9.40.053 Construction.[3]
Notwithstanding any other provision of this chapter, between the hours of eight a.m. and eight p.m. daily except Saturday, when the exemption herein shall apply between nine a.m. and eight p.m. and Sundays and holidays, when the exemption herein shall apply between ten a.m. and six p.m., construction, alteration, or repair activities which are authorized by valid City permit shall be allowed if they meet at least one of the following noise limitations:

A. No individual piece of equipment shall produce a noise level exceeding eighty-three dBA at a distance of twenty-five feet. If the device is housed within a structure on the property, the measurement shall be made outside the structure at a distance as close to twenty-five feet from the equipment as possible.
B. The noise level at any point outside the property plane of the Project shall not exceed eighty-six dBA.

"Local ambient" is defined in Article 3 as the lowest sound level repeating itself at a certain location during a six-minute period as measured with a precision sound level meter, using slow response and "A" weighting. However, for purposes of this chapter, in no case shall the local ambient be considered or determined to be less than 40dB. We are reporting the measured L_{90} noise level to represent the ambient level.

"Noise level" is defined as the maximum continuous sound level or repetitive peak sound level, produced by a source or group of sources as measured with a precision sound level meter. In order to measure a noise level, the controls of the precision sound level meter should be arranged to the setting approximate to the type of noise being measured. Article 8 specifies noise measurements to be made with a sound level meter using the 'A' weighted network at slow meter response (except fast meter response is to be used for impulsive noise).

[3] We understand that these construction regulations are also incorporated into the Union Sanitary District use permit (UP-5-95).

EXISTING (AMBIENT) NOISE ENVIRONMENT

The noise environment at the site is most impacted by distant traffic and equipment noise. Noise levels were measured at several locations around the site between 15 and 19 November 2018. Locations are shown on the site map, Figure 1, below. Measured hourly ambient noise levels (L_{90}) at each location were between approximately 40 dB and 50 dB depending on the time of day. Therefore, 40 dB is used for our analysis as the baseline nighttime "local ambient" (also per City Code), and 45 dB is used for our analysis as the baseline daytime "local ambient." Measured average daily noise levels (DNL, per the City Safety Element development standards) are listed in Table 3 below.

Figure 1: Noise Measurement Locations

Table 3: Existing Noise Environment Surrounding the Project Site

Location	Daily Average Noise Levels	Hourly "Local Ambient" Noise Levels (L_{90})	Hourly Average Ambient Noise Levels (L_{eq})
1	DNL 58 to 62 dB	L_{90} 39 to 52 dB	L_{eq} 44 to 61 dB
2*	DNL 56 to 60 dB	L_{90} 39 to 48 dB	L_{eq} 44 to 59 dB
3	DNL 53 to 59 dB	L_{90} 39 to 52 dB	L_{eq} 44 to 67 dB
4	DNL 57 to 62 dB	L_{90} 36 to 51 dB	L_{eq} 44 to 68 dB

*Note: Noise level at this location is estimated and based on correlation of short-term measurement data (1 hour) with simultaneous measurement at long-term measurement data at other locations.

Thus, the noise limit for residential land-uses would be 50 dB, 10 dB above the prescribed minimum "local ambient" of 40 dB.

EXISTING NOISE-SENSITIVE RECEPTORS

The following noise-sensitive receptors were identified for use in our analysis.

Receptor 1: The nearest potential sensitive receptor is a residence along Veasy Street located approximately 200 feet away from the proposed Project building. Though this area is zoned as light industrial, this property and some others appear to be used as single-family residences. This receptor can also apply to a tentatively approved religious facility directly north of the site (if it is constructed, we understand that permits are not yet on file for the Project).

Receptor 2: Farther north, along Horner Street there are a couple properties that appear to be used as single-family residential properties. Therefore, these are also evaluated as a sensitive receptor. They are located approximately 600 feet away from the proposed Project building.

Receptor 3: East of the site, residences are located along Shorebird Drive. The nearest homes are approximately 1,000 feet away from the proposed Project building.

Receptor 4: Northeast of the site, residences are located along Horner Street (east of Whipple Road). The nearest homes are approximately 1,300 feet away from the proposed Project building.

Figure 2: Noise-Sensitive Receptor Locations

METHODOLOGY

Summary of Project-Specific Noise and Vibration Impact Statements

To evaluate whether the Project will have a significant impact, the following impact statements were developed:

Impact 1: Operational Noise ("temporary"). The Project equipment noise could result in a significant temporary or periodic increase in ambient noise levels and/or exceed local standards.

Impact 2: Operational Noise ("permanent"). If operated for a long period of time, the Project equipment noise could result in a significant increase in ambient daily average noise levels and/or exceed local standards.

Impact 3: Construction Noise. During construction, noise generated by equipment and activities on the site could result in a significant increase in ambient noise levels.

Impact 4: Operational Groundborne Vibration. Operation of the Project equipment could expose persons to perceptible groundborne vibration.

Impact 5: Construction Groundborne Vibration. The construction of the Project could expose persons to excessive groundborne vibration.

Noise Impact Thresholds of Significance

Regarding Impacts 1 and 2, CEQA does not define the noise level increase that is considered substantial. Therefore, we offer the following significance criteria based on published studies of human response to noise, local standards, and our experience.

- For permanent noise increase:
  - An increase in the ambient day-night average noise level[4] (DNL) of 3 dB or greater at noise-sensitive receptors would be considered significant when Projected future noise levels would exceed those considered "normally acceptable" for the affected land use (e.g., DNL 59 dB + 3 dB = DNL 62 dB).
  - An increase of 5 dB or greater would be considered significant when Projected noise levels would continue to meet those considered satisfactory for the affected land use (e.g., DNL 54 dB + 5 dB = DNL 59 dB).
- For temporary noise increase:
  - An increase in average ambient (L_{eq}[5]) noise levels by more than 5 dB, or
  - An increase in ambient noise levels that would exceed the City Noise Ordinance standards for noise increases above the "local ambient" (L_{90}[6]).

---

[4] Day-Night Average Sound Level (DNL or L_{dn}) – A descriptor established by the U.S. Environmental Protection Agency to describe the average day-night level with a penalty applied to noise occurring during the nighttime hours (10 pm - 7 am) to account for the increased sensitivity of people during sleeping hours.

[5] L_{eq} – The equivalent steady-state A-weighted sound level that, in a stated period of time, would contain the same acoustic energy as the time-varying sound level during the same period.

[6] L_{90} — The noise level (in dB) that was equaled or exceeded 90 percent of the time; L_{10}, L_{50} and L_{90} are the levels equaled or exceeded 10, 50 and 90 percent of the time, respectively.

Per the significance thresholds and noise standards identified above, the Project equipment might result in a significant impact if it increases noise at the neighboring sensitive receptors above the levels listed in Tables 4a and 4b:

Table 4a: Threshold of Significant "Permanent" Increase for Noise-Sensitive Receptors

Receptor	Ambient Noise Level (DNL)	Allowable Increase	"Permanent" Noise Limit
1	DNL 58 dB	+ 3 dB (if future level is over 60 dB)	**DNL 61 dB**
2	DNL 56 dB	+ 4 dB (to meet 60 dB City Standard)	**DNL 60 dB**
3	DNL 53 dB	+ 5 dB (if future level is under 60 dB)	**DNL 58 dB**
4	DNL 57 dB	+ 3 dB (if future level is over 60 dB)	**DNL 60 dB**

Table 4b: Threshold of Significant "Temporary" Increase for Noise-Sensitive Receptors

Receptor	Ambient Noise Level	Allowable Increase	"Temporary" Noise Limit
All four	L_{90} 40 dB	+10 dB (per City Noise Ordinance)	**50 dB**
All four	L_{eq} 44 dB	+5 dB (per threshold of significance)	**49 dB**

Vibration Impact Thresholds of Significance

Regarding Impacts 4 and 5, CEQA does not define the vibration level that is considered substantial. Therefore, we offer significance criteria based on published information and our experience. The Caltrans "Transportation and Construction Vibration Guidance Manual" (September 2013) includes guidelines for the assessment of construction vibration. We are referencing these for the evaluation of vibration levels measured during Project construction activities. They relate to both potential damage and human perception. Tables 4 and 5 below are excerpts from the Caltrans manual with applicable thresholds highlighted, which range between 0.3 to 1.0 PPV (in/sec) for potential damage to residential structures and 0.01 to 0.25 PPV (in/sec) for human perception (PPV is 'peak particle velocity').

Table 5a: Guideline Vibration Damage Potential Threshold Criteria (Maximum PPV, in/sec)

Structure and Condition	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12 PPV	0.08 PPV
Fragile buildings	0.2 PPV	0.1 PPV
Historic and some old buildings	0.5 PPV	0.25 PPV
Older residential structures	**0.5 PPV**	**0.3 PPV**
New residential structures	**1.0 PPV**	**0.5 PPV**
Modern industrial/commercial buildings	2.0 PPV	0.5 PPV

Table 5b: Guideline Vibration Annoyance Potential Criteria (Maximum PPV, in/sec)

Structure and Condition	Transient Sources	Continuous/Frequent Intermittent Sources
Barely perceptible	**0.04 PPV**	**0.01 PPV**
Distinctly perceptible	**0.25 PPV**	**0.04 PPV**
Strongly perceptible	0.9 PPV	0.1 PPV
Severe	2.0 PPV	0.4 PPV

Noise Analysis Overview

Project generator equipment would be operated occasionally. To assess potential noise impacts, the operation was evaluated from both a "temporary" and "permanent" impact perspective. The "temporary" impact assessment simply evaluates noise levels that could be generated while the equipment operates. The "permanent" impact assessment takes a broader view and evaluates potential changes to the average daily noise environment on those days when the equipment operates.

We analyzed noise from the following noise sources based on the preliminary site and building plan and estimated/example acoustical performance data provided by the engineer for some of the equipment. The major noise-generating equipment includes:

- Two generator engines, minimum 3.5 MW
- Three building exhaust fans, likely at the roof
- Two building HVAC units installed at-grade

Our analysis is based on provided sound data for a 3.9 MW Caterpillar generator system. We understand that the engines would be fully enclosed in a building. The baseline assumption for the building wall and roof system is modular panels with an STC rating of 30. The engine exhaust outlet would be located outdoors. The baseline assumption is an exhaust discharge on the roof along with an in-line muffler providing 25 dB of sound insertion loss. In addition, large openings would be needed in the building envelope for radiator ventilation. The baseline assumption for these is openings is that they are covered with architectural louvers.

Example equipment information was also provided for the exhaust fans. The baseline assumption is that these are located on the roof, emitting noise from the casing and the discharge, primarily. The building HVAC units are not yet designed; thus, an assumption was made for their sound rating (see below).

Outdoor noise levels listed in this report are based on conditions with both engine generators and all accessory HVAC units operating simultaneously. The site plan indicates that two additional generators could be added in the future, which would be expected to increase noise by three decibels, nominally, if the design parameters are effectively the same.

NOISE IMPACTS AND MITIGATION MEASURES

Impact 1: Operational Noise ("temporary"). The Project equipment noise could result in a significant temporary increase in ambient noise levels and/or exceed local standards.

Engine and Radiator Noise and the Building Envelope

The engines are to be fully enclosed in a building. The example 3.9 MW Caterpillar engine is rated to generate a sound power level of 127 dB (A-weighted). The wall and roof construction would need to be sound-attenuating materials. The composite sound transmission loss performance of the building envelope would need to be equivalent to STC 37. This is inclusive of the walls, roof, doors, vents, and other openings.

- The walls and roof might be an upgraded or augmented modular/prefabricated panel system, if available, or a more traditional framing system.
- Depending on location/orientation of doors, they will likely need to be gasketed.
- Depending on size and location, ventilation openings will also require sound attenuation measures with an effective sound insertion loss between 20 to 30 dB (A-weighted). This could be achieved by common sound attenuators including one or more of the following:
  - A duct silencer or bank of silencers (typically 10 to 30 dB sound insertion loss)
  - Acoustical louvers (typically 10 to 15 dB sound insertion loss)
  - Duct/plenum internally lined with acoustical insulation (typically 5 to 20 dB sound insertion loss)

Engine Exhaust Noise

The generators will include engine exhaust systems with outdoor openings. The example 3.9 MW Caterpillar engine exhaust is rated to generate a sound power level of 130 dB (A-weighted). At each exhaust pipe, a muffler would be needed to provide an effective sound insertion loss of 35 dB (A-weighted).

Building Exhaust Fans

The analysis also accounts for three exhaust fans, each with a sound power rating of 92 dB (A-weighted). The exhaust fans would either need to be placed behind noise barrier screen walls or located inside the building (e.g., in-line cabinet or mixed-flow fans) and ducted to the outdoor ventilation openings through similar sound attenuation measures described above for each ventilation opening. At least 15 dB (A-weighted) of effective sound insertion loss would be needed to reduce exhaust fan discharge noise.

Building HVAC Units

The building site is expected to include two outdoor HVAC units installed at grade. Though these systems are not yet designed, we assumed that each would have a sound power rating of 90 dB (A-weighted). The HVAC units would need to be located behind a noise barrier screen wall that is at least two feet taller than the units. The wall would need to be solid with no gaps, including at the ground, and have a minimum surface weight of 3 psf. The surface of the wall facing the HVAC units should be sound absorbing. This can be achieved with prefabricated insulated metal panels or a traditional solid wall with an applied sound absorbing finish.

Calculated Equipment Noise Levels

Based on the notes and measures described above, we calculated the expected equipment noise levels at each identified receptor for each scenario (see Table 6). The proposed mitigation measures are expected to reduce equipment noise at the noise-sensitive receptors to meet the City Noise Ordinance limit and avoid a significant increase in noise.

Table 6: Calculated Project Equipment Noise Levels at each Receptor

Receptor	Baseline/Unmitigated Conditions	With Mitigation	"Temporary" Noise Limit
1	68 dB	49 dB	**49 to 50 dB**
2	58 dB	40 dB	
3	54 dB	35 dB	
4	51 dB	33 dB	

Significance: Less-than-significant impact with mitigation.

Mitigation 1: The required mitigation is described in the discussion above. A summary of the required mitigation for each scenario is also listed in Table 1 in the "Summary" section above. An updated noise analysis should be performed during the design phase as the equipment selections and designs are refined to confirm the details of necessary noise mitigation.

Impact 2: Operational Noise ("permanent"). If operated for a long period of time, the Project equipment noise could result in a significant increase in ambient average daily noise levels and/or exceed local standards.

The daily average noise level (DNL) resulting from the equipment would depend on the duration of operation. Based on historical operational data provided for the existing generator system, it seems that they could be operated for a few hours in a day. To be conservative, we calculated daily average levels at each receptor location if the generators were to run for 8 hours in one day during daytime hours between 7 a.m. and 10 p.m. Table 7 summarizes the calculated noise levels at each sensitive receptor (i.e., lowest measured ambient + equipment noise).

Table 7: Calculated Average Daily Noise Levels (Ambient + Equipment Noise)

Receptor	Baseline/Unmitigated Conditions	With Mitigation	"Permanent" Noise Limit
1	DNL 64 dB	DNL 58 dB	**DNL 61 dB**
2	DNL 58 dB	DNL 56 dB	**DNL 60 dB**
3	DNL 55 dB	DNL 53 dB	**DNL 58 dB**
4	DNL 58 dB	DNL 58 dB	**DNL 60 dB**

As shown in the table above, the proposed mitigation measures for each scenario are expected to reduce equipment noise at the noise-sensitive receptors to meet the City General Plan daily average noise standard of 60 dB and avoid a significant increase in noise. In fact, the Mitigation 1 required to meet the "temporary" noise limit would also be sufficient to maintain noise levels no greater than DNL 60 dB, meeting the "permanent" DNL limit and City "normally acceptable" land-use standard, even if the equipment were to operate for 24 consecutive hours.

Significance: Less-than-significant impact with mitigation.

Mitigation 2: No additional mitigation required beyond what is listed in Mitigation 1.

Impact 3: Construction Noise. During construction, noise generated by equipment and activities on the site could result in a significant increase in ambient noise levels.

Construction activities would include use of heavy equipment for grading, foundation construction, building erection, and other activities. Neighboring land-uses with direct line-of-sight to construction activities and construction traffic could be affected by construction noise. Potential construction noise impacts would vary with distance. Table 8 summarizes the expected construction phases, equipment, and typical noise levels.

Table 8: Typical Maximum Construction Noise Levels

Phase	Equipment	Noise Level (dBA)[7]		
		At 50 feet	At 150 feet	At 600 feet
Grading	Scraper, Compactor, Water Truck, Blade /Grader, Excavator, Dump Trucks	85	73	63
Utilities	Excavator, Rubber Tire Loader, Water Truck, Backhoe, Dump Truck	80	68	58
Foundations	Forklift, Compressor, Cement Mixer/Truck, Concrete Finisher, Concrete Boom Pump, Crane	85	73	63
Building Exterior	Gradall/Crane, Hand/Power Tools	85	73	63
Building Interior	Gradall, Metal Stud Saw (indoors), Paint Sprayer, Hand/Power Tools	80	68	58
Hardscape and Landscape	Backhoe, Compactor, Dump Truck, Cement Mixer/Truck, Bobcat	80	68	58

Pursuant to the site use permit (UP-5-95), construction activities are to be limited to standard daytime hours. These are between the hours of 8:00 a.m. and 8:00 p.m. on Monday through Friday, 9:00 a.m. and 8:00 p.m. on Saturdays, and 10:00 a.m. and 6:00 p.m. on Sundays and holidays. During these standard daytime construction hours, construction activities are exempt from the standard Noise

[7] Equipment noise levels are from Section 9 of the Federal Highway Administration Highway Traffic Noise Construction Noise Handbook (August 2006).

Ordinance limits (Section 9.40.043) and instead must meet one of the two following standards (see Section 9.40.053):

1. No individual piece of equipment shall produce a noise level exceeding 83 dBA at a distance of 25'.
2. The noise level at any point outside the property plane of the Project shall not exceed 86 dBA.

Some construction equipment may generate intermittent noise levels up to 80 dBA to 85 dBA at a distance of 50 feet. These levels would meet the City Noise Ordinance limit of 86 dB outside the property plane and thus meet the City Noise Ordinance regulations for daytime activity. At a distance of 500 feet, these projected construction noise levels would be reduced to 60 dBA to 65 dBA or quieter, which would then be in-line with typical environmental events (e.g., vehicle passbys).

Nonetheless, noise-generating activities over the construction period, though temporary, could increase ambient noise levels at neighboring sensitive land-uses. Reasonable measures to manage construction activities should be implemented to reduce the potential noise impact, as feasible.

Deep foundations (e.g., piles or piers) may be required under the generator foundations. Impact pile driving noise can exceed 100 dB and would exceed the City daytime construction noise limit of 86 dB at any distance less than 300 feet (approximately). We understand that non-impact installation methods are being considered for the Project (e.g., vibratory, drilled and poured in place, etc.) as discussed in the Project geotechnical report.

Significance: Less-than-significant with mitigation. Construction impacts are expected to be temporary and vary through various phases. Mitigation measures outlined below, are expected to reduce construction noise, to the extent feasible, to be less than significant.

Mitigation 3: To reduce potential noise impact from construction-related activities, they are to be conducted in accordance with the following:

- Properly muffle and maintain all construction equipment powered by internal combustion engines.
- Prohibit unnecessary idling of combustion engines.
- Locate all stationary noise-generating construction equipment such as air compressors as far as practical from existing nearby residences and other noise-sensitive land uses. Such equipment shall also be acoustically shielded.
- Select quiet construction equipment particularly air compressors, whenever possible. Fit motorized equipment with proper mufflers in good working order.
- Residences located within 500 feet of the Project site shall be notified once (in writing) of the proposed construction schedule before construction activities commence.
- The contractor shall designate a "noise disturbance coordinator," or a project liaison, responsible for responding to any local complaints about construction noise. The disturbance coordinator shall determine the cause of any noise complaint (e.g., starting too early, bad muffler, etc.) and shall require that reasonable measures be implemented to correct the problem. A telephone number for the disturbance coordinator shall be posted at the construction site.

Impact 5: Operational Groundborne Vibration. Operation of the Project could expose persons to excessive groundborne vibration.

Vibration equipment has the potential to generate vibration at neighboring properties. However, with industry-standard vibration isolation measures, it is very unlikely that the equipment would generate perceptible vibration at the nearest sensitive receptor.

Significance: Less-than-significant with mitigation.

Mitigation 5: Vibration-generating generator and mechanical equipment is to be adequately vibration isolated using spring isolation mounts and hangers per ASHRAE guidelines (in the ASHRAE Applications Handbook) to reduce ground-borne vibration levels at neighboring properties.

Impact 6: Construction Groundborne Vibration. The construction of the Project could expose persons to excessive groundborne vibration.

Construction activities would include site preparation work, minor excavation, foundation work, and new building framing. Tables 9 and 10 present typical vibration levels[8] that could be expected from construction equipment at distances of 25 and 200 feet. However, vibration levels would vary depending on soil conditions, construction methods, and equipment used at the site.

Table 9: Example Construction Vibration Levels Compared to Building Damage Thresholds

Equipment	PPV at 25 ft. (in/sec)	Threshold Limits
Vibratory Roller	0.210	0.3 to 0.5 for continuous sources; 0.5 to 1.0 for transient sources
Hoe Ram	0.089	
Large bulldozer	0.089	
Caisson drilling	0.089	
Loaded trucks	0.076	
Jackhammer	0.035	
Small bulldozer	0.003	

Table 10: Example Construction Vibration Levels Compared to Human Perception Thresholds

Equipment	PPV at 200 ft. (in/sec)	Threshold Limits
Vibratory Roller	0.021	0.01 to 0.04 for continuous sources; 0.04 to 0.25 for transient sources
Hoe Ram	0.009	
Large bulldozer	0.009	
Caisson drilling	0.009	
Loaded trucks	0.008	
Jackhammer	0.004	
Small bulldozer	<0.001	

As indicated in Table 9, vibration levels would not be expected to exceed the threshold limits related to building damage at any nearby sensitive receptor. As indicated in Table 10, very few vibration levels are expected to exceed the threshold limits related to human perception at any nearby sensitive receptor. Only a vibratory roller might be significant.

[8] From the Caltrans "Transportation and Construction Vibration Guidance Manual" (September 2013) and the "Transit Noise and Vibration Impact Assessment" report by the United States Department of Transportation, Office of Planning and Environment, Federal Transit Administration, May 2006. Estimated levels at setbacks greater than 25 feet are estimated per the Caltrans published formula $PPV_{equipment} = PPV_{ref} (25/D)^n$, where PPV_{ref} is the reference PPV at 25 feet, D is the distance from the equipment to the receiver (in feet), and n is a reference value of 1.1.

Significance: Less-than-significant with mitigation.

Mitigation 6: Limit construction activities with the highest potential to produce significant vibration (e.g., such as a vibratory roller) to less-sensitive daytime hours. Residences within 500 feet of the Project Site shall be notified once (in writing) of the proposed construction schedule before construction activities commence.

* * *

APPENDIX A

Fundamental Concepts of Environmental Noise

This section provides background information to aid in understanding the technical aspects of this report.

Three dimensions of environmental noise are important in determining subjective response. These are:

- The intensity or level of the sound
- The frequency spectrum of the sound
- The time-varying character of the sound

Airborne sound is a rapid fluctuation of air pressure above and below atmospheric pressure. Sound levels are usually measured and expressed in decibels (dB), with 0 dB corresponding roughly to the threshold of hearing.

The "frequency" of a sound refers to the number of complete pressure fluctuations per second in the sound. The unit of measurement is the cycle per second (cps) or hertz (Hz). Most of the sounds, which we hear in the environment, do not consist of a single frequency, but of a broad band of frequencies, differing in level. The name of the frequency and level content of a sound is its sound spectrum. A sound spectrum for engineering purposes is typically described in terms of octave bands, which separate the audible frequency range (for human beings, from about 20 to 20,000 Hz) into ten segments.

Many rating methods have been devised to permit comparisons of sounds having quite different spectra. Surprisingly, the simplest method correlates with human response practically as well as the more complex methods. This method consists of evaluating all of the frequencies of a sound in accordance with a weighting that progressively de-emphasizes the importance of frequency components below 1000 Hz and above 5000 Hz. This frequency weighting reflects the fact that human hearing is less sensitive at low frequencies and at extreme high frequencies relative to the mid-range.

The weighting system described above is called "A"-weighting, and the level so measured is called the "A-weighted sound level" or "A-weighted noise level." The unit of A-weighted sound level is sometimes abbreviated "dBA." In practice, the sound level is conveniently measured using a sound level meter that includes an electrical filter corresponding to the A-weighting characteristic. All U.S. and international standard sound level meters include such a filter. Typical sound levels found in the environment and in industry are shown in Figure A-1.

Although a single sound level value may adequately describe environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise is a conglomeration of distant noise sources, which results in a relatively steady background noise having no identifiable source. These distant sources may include traffic, wind in trees, industrial activities, etc. and are relatively constant from moment to moment. As natural forces change or as human activity follows its daily cycle, the sound level may vary slowly from hour to hour. Superimposed on this slowly varying background is a succession of identifiable noisy events of brief duration. These may include nearby activities such as single vehicle pass-bys, aircraft flyovers, etc. which cause the environmental noise level to vary from instant to instant.

To describe the time-varying character of environmental noise, statistical noise descriptors were developed. "L10" is the A-weighted sound level equaled or exceeded during 10 percent of a stated time period. The L10 is considered a good measure of the maximum sound levels caused by discrete noise events. "L50" is the A-weighted sound level that is equaled or exceeded 50 percent of a stated time

period; it represents the median sound level. The "L90" is the A-weighted sound level equaled or exceeded during 90 percent of a stated time period and is used to describe the background noise.

As it is often cumbersome to quantify the noise environment with a set of statistical descriptors, a single number called the average sound level or "L_{eq}" is now widely used. The term "L_{eq}" originated from the concept of a so-called equivalent sound level which contains the same acoustical energy as a varying sound level during the same time period. In simple but accurate technical language, the L_{eq} is the average A-weighted sound level in a stated time period. The L_{eq} is particularly useful in describing the subjective change in an environment where the source of noise remains the same but there is change in the level of activity. Widening roads and/or increasing traffic are examples of this kind of situation.

In determining the daily measure of environmental noise, it is important to account for the different response of people to daytime and nighttime noise. During the nighttime, exterior background noise levels are generally lower than in the daytime; however, most household noise also decreases at night, thus exterior noise intrusions again become noticeable. Further, most people trying to sleep at night are more sensitive to noise. To account for human sensitivity to nighttime noise levels, a special descriptor was developed. The descriptor is called the L_{dn} (Day/Night Average Sound Level), which represents the 24-hour average sound level with a penalty for noise occurring at night. The L_{dn} computation divides the 24-hour day into two periods: daytime (7:00 am to 10:00 pm); and nighttime (10:00 pm to 7:00 am). The nighttime sound levels are assigned a 10 dB penalty prior to averaging with daytime hourly sound levels.

For highway noise environments, the average noise level during the peak hour traffic volume is approximately equal to the L_{dn}.

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

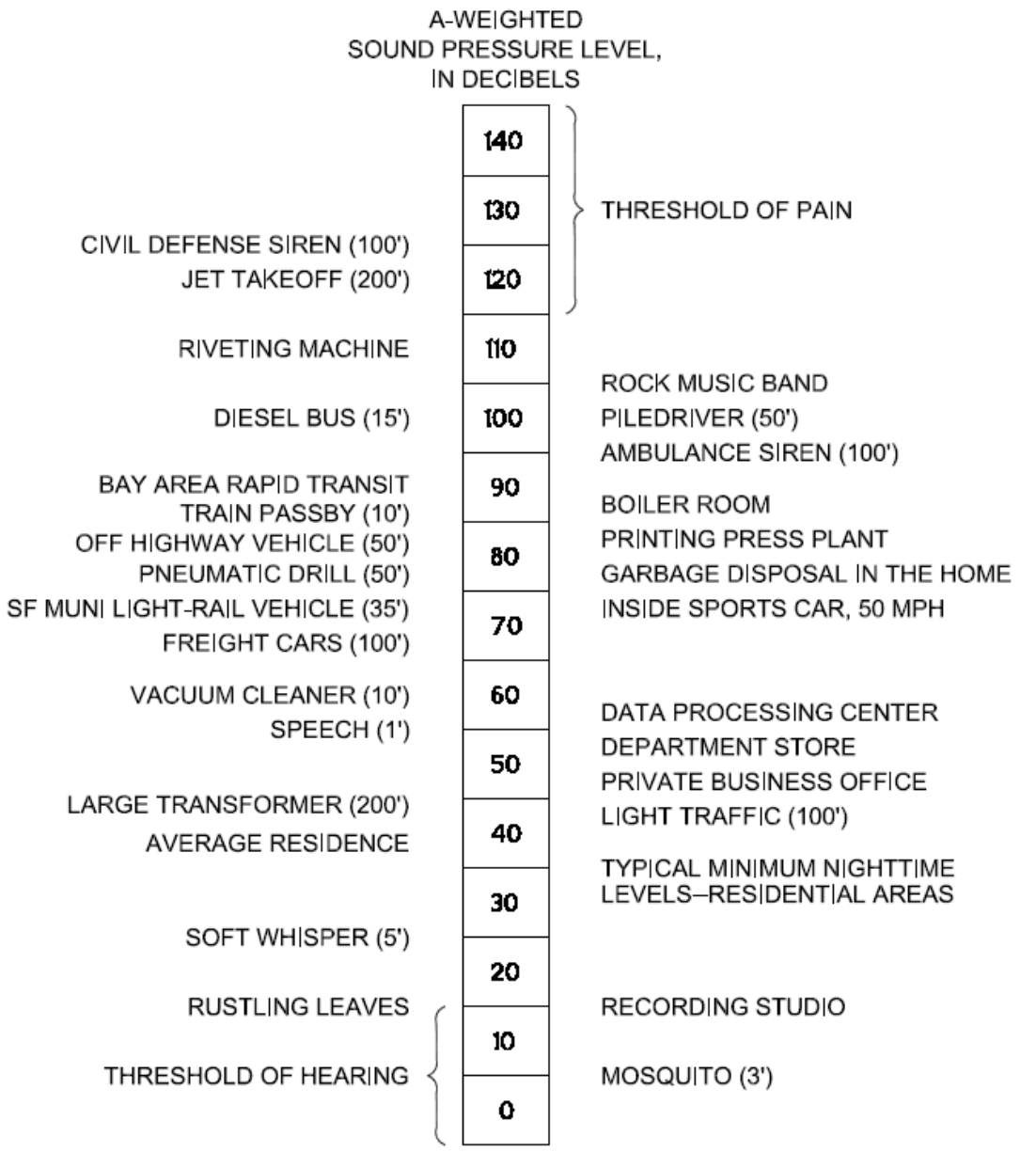
- Subjective effects of annoyance, nuisance, dissatisfaction
- Interference with activities such as speech, sleep, and learning
- Physiological effects such as startle, hearing loss

The sound levels associated with environmental noise usually produce effects only in the first two categories. Unfortunately, there has never been a completely predictable measure for the subjective effects of noise nor of the corresponding reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance and habituation to noise over time.

Thus, an important factor in assessing a person's subjective reaction is to compare the new noise environment to the existing noise environment. In general, the more a new noise exceeds the existing, the less acceptable the new noise will be judged.

With regard to increases in noise level, knowledge of the following relationships will be helpful in understanding the quantitative sections of this report:

Except in carefully controlled laboratory experiments, a change of only 1 dB in sound level cannot be perceived. Outside of the laboratory, a 3 dB change is considered a just-noticeable difference. A change in level of at least 5 dB is required before any noticeable change in community response would be expected. A 10 dB change is subjectively heard as approximately a doubling in loudness, and would almost certainly cause an adverse community response.



TYPICAL SOUND LEVELS MEASURED IN THE ENVIRONMENT AND INDUSTRY

FIGURE A1

1107 C 11.25.03