OAKSTONE NORTHERN CALIFORNIA EXPANSION PROJECT

Draft Initial Study / Mitigated Negative Declaration

October 2023

Prepared for:

City of Pittsburg
Planning Division
65 Civic Avenue
Pittsburg, CA 94565

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INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

1. Project Title:	Oakstone Northern California Expansion Project
2. Lead Agency Name and Address:	City of Pittsburg Planning Division 65 Civic Avenue Pittsburg, CA 94565
3. Contact Person and Phone Number:	Maurice Brenyah-Addow Senior Planner (925) 252-4261
4. Project Location:	APN #073-190-035 2000 Loveridge Road Pittsburg, CA 94565
5. Project Sponsor:	Christian D. Lenci Director of Capital, Productivity and Energy Linde Inc. 1620 W. Fountainhead Pkwy Tempe, AZ 85282
6. General Plan Designation:	Industrial
7. Zoning:	General Industrial (IG)

8. Description of Project:

Project Overview

Linde, Inc. (the Applicant) is proposing to expand their existing facility on a 31.55-acre parcel (APN #073-190-035) at 2000 Loveridge Road in Pittsburg, CA. The parcel is zoned General Industrial (IG) and is designated Industrial in the City's 2020 General Plan. The expanded facility would increase current production of liquid nitrogen, oxygen, and argon. No additional or new products would be produced. The liquid products are distributed via truck to the Bay Area, the Central Valley, and into nearby states. The products are stored in three large storage tanks, transferred into bulk trucks, and then delivered into smaller tanks at customer locations.

The market is very consolidated, comprised of five major companies that together have a 95 to 98 percent market share in the United States. There are three air separation plants in the Bay Area, the other two are in Vacaville and Santa Clara. The products are hyper-critical to the economy: in one example, these three plants supplied medical oxygen to every Covid ventilator at every Bay Area hospital during the recent pandemic.

The air separation process is widely acknowledged for being environmentally clean. Electricity and physical chemistry are used to separate the three main components of air – nitrogen (78 percent of the air), oxygen (21 percent), and argon (1 percent) by cooling them down to cryogenic temperatures where they change from gas to liquid phase. There is no combustion, chemical reactions, additional ingredients, or added materials needed to separate the gases into their pure elemental form. People inhale the products of this process in every breath.

Project Elements

The proposed expansion (the "Project") includes the construction and operation of a second centralized atmospheric air separation plant producing liquid nitrogen, oxygen, and argon. The air separation plant would include the following:

- Two main air compressors
- Two prepurifier vessels which remove moisture, carbon dioxide, and the other gases in air and return them back to the air
- An industrial class chiller to pre-cool the air
- One large distillation tower containing heat exchangers, booster compressor/turbine sets, and cryogenic distillation columns
- Three individual sets of storage tanks for the three products
- Interconnecting piping and instrumentation and valving
- An electric substation to distribute large amounts of electricity needed to operate the facility
- A cooling tower, associated piping and heat exchangers to remove the heat from the compressors

The entire plant is outdoors and no new buildings are included with the Project. The existing buildings on the parcel would be used for the additional employees. The Project elements consist of prefabricated equipment and enclosures for switch gears and the Quality Assurance analyzer enclosure in the fill zone.

The distillation tower is a single, square package approximately 14.5 feet wide per side and reaches a maximum height of 137 feet. The tower height is required for separation of the three gases. The towers arrive at the plant site during the construction phase in a single section and are installed by large cranes. The distillation tower has no moving parts and is designed to in such a way that requires a vertical distance to enable the liquid and gases to move and physically separate within the columns inside the structure. All products are recovered from the column and there is no venting of product within these columns during steady state operations.

Project Site

The proposed expansion area (the “Project site”) is an approximately 2.5-acre portion of the 31.55-acre parcel (APN #073-190-035) at 2000 Loveridge Road in Pittsburg, CA. The Project site is currently undeveloped and is in the northern area of the parcel east of the Union Pacific Railroad line that extends south into the parcel. Union Pacific Railroad and Pittsburg-Antioch Highway are to the north and the existing facility is to the south and east. The parcel is zoned General Industrial (IG) and is designated Industrial in the City’s 2020 General Plan.

Figure 1 shows the Regional Location, **Figure 2** shows the Project Location, **Figure 3** shows the Site Plan, and **Figure 4** shows the 3D Elevation of the facility.

Circulation and Parking

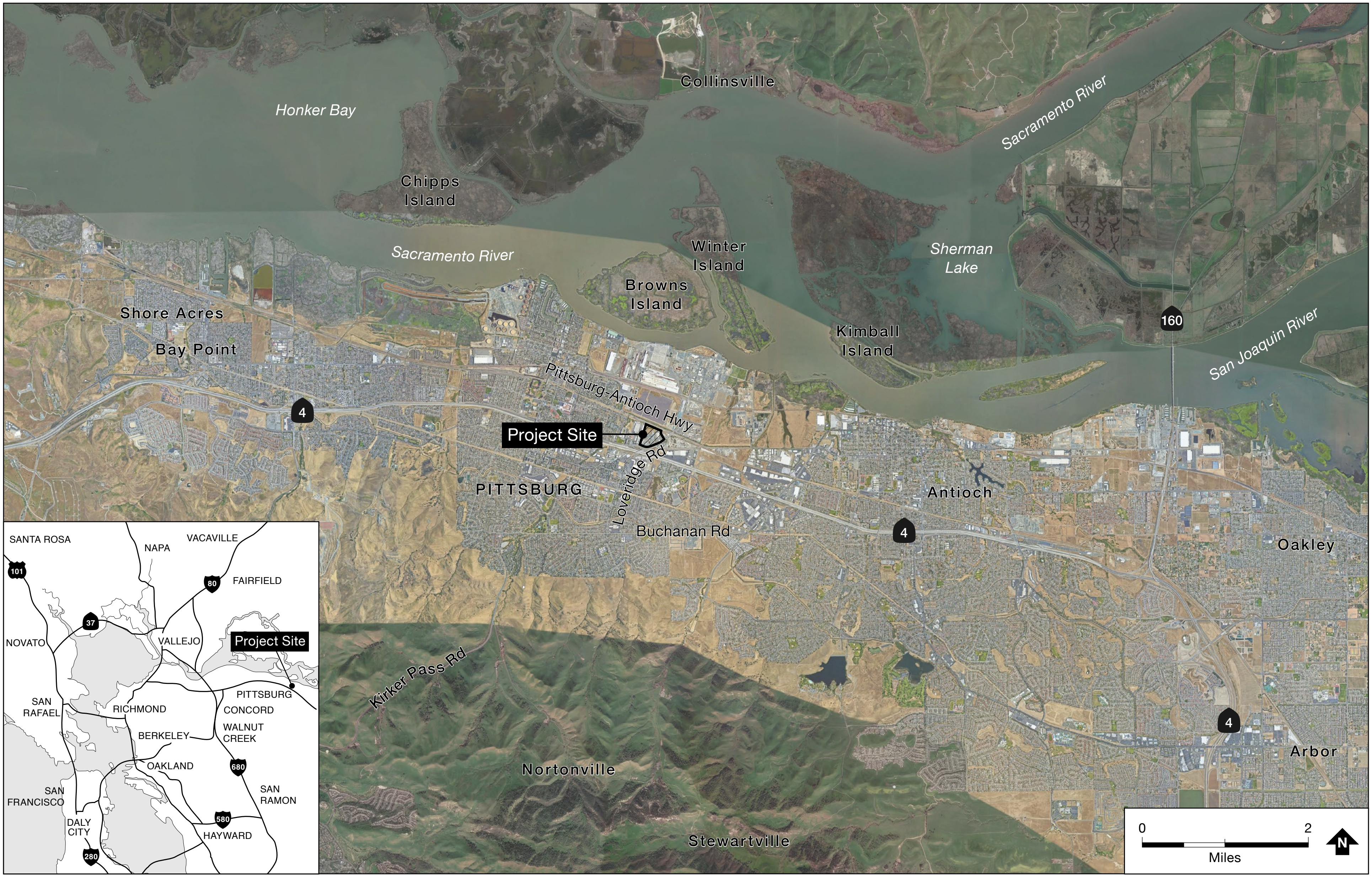
Trucks (starting at six to seven per day and ramping up to 16 to 20 per day) would utilize the existing entry/exit on Loveridge Road. Nearly all truck traffic is expected to head south on Loveridge Road to Highway 4. The expected destination and trip distances for truck trips are displayed in **Table 1**. An additional four employee round trips would be generated by the Project. Therefore, Project operations would generate a maximum of 24 round trips per day (48 one-way trips per day).

TABLE 1 PROJECT TRUCK TRIPS AND EXPECTED DESTINATION

Year	Maximum Daily Round Truck Trips	Average Round Trip Distance
Bay Area	12	80
Central Valley	4	160
Nevada	2	400
Misc./Southern CA	2	520

SOURCE: Linde Inc., 2023.

Adequate parking is provided within the existing facility (150 stalls). Seven standard stalls would be removed to provide a 25-foot drive aisle through the parcel to the Project site. Thus, 143 parking stalls would be provided at the facility with the Project.



Source: RCH Group; Google Earth Pro, 2023

Figure 1
Regional Project Location

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Source: RCH Group; Linde Engineering Americas; Google Earth Pro, 2023

Figure 2
Project Vicinity Map

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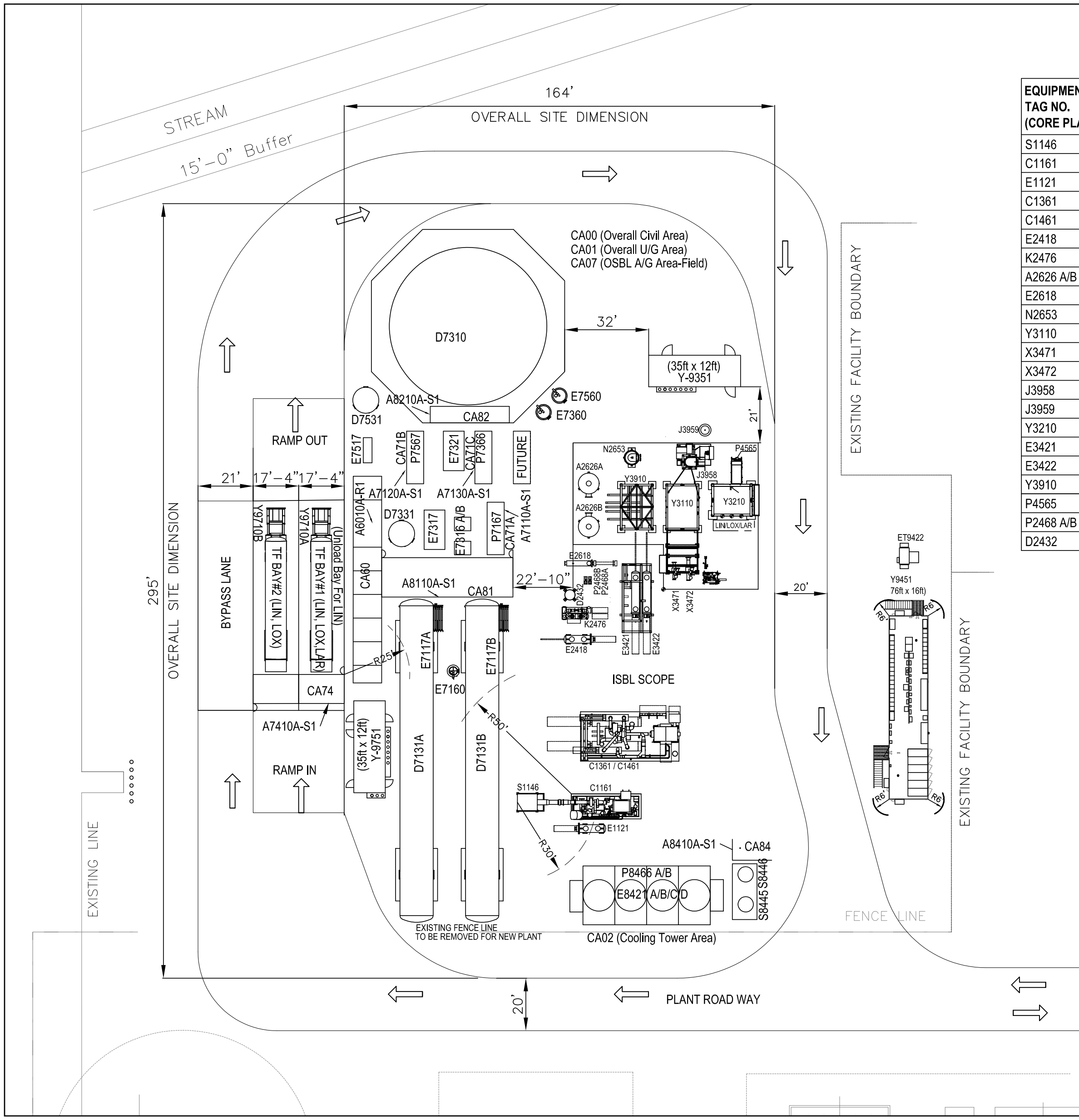

EQUIPMENT TAG NO. (CORE PLANT)	EQUIPMENT DESCRIPTION
S1146	MAC INLET FILTER
C1161	MAIN AIR COMPRESSOR
E1121	MAC AFTER COOLER
C1361	FEED GAS COMPRESSOR
C1461	RECYCLE COMPRESSOR
E2418	INDIRECT AIR COOLER
K2476	REFRIGERATION UNIT
A2626 A/B	MOLSIEVE ADSORBER
E2618	ELECTRICAL REGENERATION HEATER
N2653	MS BLOW OFF SILENCER
Y3110	HEAT EXCHANGER COLDBOX
X3471	BOOSTER / OIL BRAKE TURBINE
X3472	2ND BOOSTER TURBINE
J3958	FAN EJECTOR
J3959	GRAVEL PIT
Y3210	RECTIFICATION COLDBOX
E3421	BOOSTER AFTER COOLER OF BOOSTER TURBINE
E3422	BOOSTER AFTER COOLER OF 2ND BOOSTER TURBINE
Y3910	WARM GAS PIPE SKID
P4565	LAR TRANSFER PUMP
P2468 A/B	CHILLED WATER PUMPS
D2432	CHILLED WATER BALLAST TANK

EQUIPMENT TAG NO. (OSBL)	EQUIPMENT DESCRIPTION
D7310	FBT-LIN TANK-LR42
P7366	LIN TRUCKFILL / TRANSFER PUMP
-	-
D7331	LIN VACCUM TANK
Y9710A	TRUCK FILL SCALE BAY #1
Y9710B	TRUCK FILL SCALE BAY #2
-	-
D7131A/B	LOX LOW PRESSURE STORAGE TANK
P7167	LOX TRUCKFILL PUMP
P7567	LAR TRUCKFILL PUMP
D7531	LAR LOW PRESSURE STORAGE TANK
E7321	VAPORIZER LIN FBT PBV
E7317	VAPORIZER LIN VACCUM PBV
E7316A/B	VAPORIZER INSTRUMENT AIR (IA)
E7117A/B	VAPORIZER LOX TANK PBV
E7517	VAPORIZER LAR TANK PBV
P8466A/B	COOLING WATER PUMPS
S8445	SAND FILTER
S8446	SIDE STREAM FILTER
E7160	DRAIN PIT-LOX
E7360	DRAIN PIT-LIN
E7560	DRAIN PIT-LAR
E8421 A/B/C/D	COOLING TOWER
Y8496	COOLING WATER TREATMENT SKID
Y9351	ANALYZER ENCLOSURE
Y9451	ELECTRICAL CONTAINER
Y9751	DRIVER'S ENCLOSURE

CONSTRUCTION AREA (OSBL) FOR SKID	P&ID TAG NO. FOR SKID	DESCRIPTION
CA71A	Y-7167	LOX TF PUMP SKID
CA71B	Y-7567	LAR TF PUMP SKID
CA71C	Y-7366	LIN TF / TRANSFER PUMP SKID
CA74	Y-7194A	TF STATION BAY#1 (LOX TF)
	Y-7394A	TF STATION BAY#1 (LIN TF)
	Y-7594	TF STATION BAY#1 (LAR TF)
	-	-
	Y-7396	TF STATION BAY#1 (LIN Unload)
	Y-7194B	TF STATION BAY#2 (LOX TF)
	Y-7394B	TF STATION BAY#2 (LIN TF)
CA81	Y-7120	LOX TANK PIPING SKID
CA82	Y-7368	LIN TANK PIPING SKID
CA84	Y-8496	WATER TREATMENT SKID

Source: Linde Engineering Americas, 2023

Figure 3
Project Site Plan

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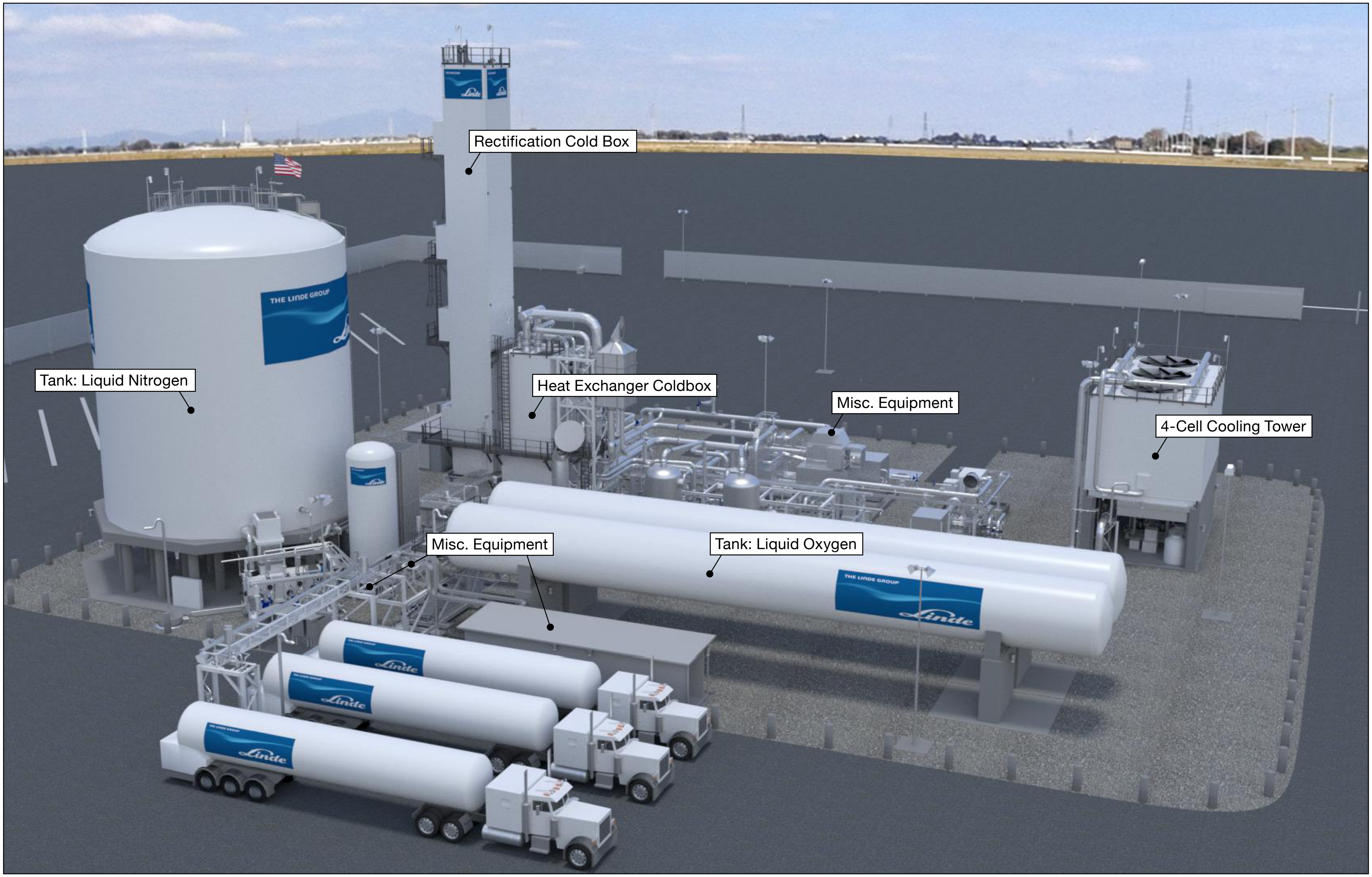

Source: S. Gordin Structural Design & Engineering Services (SGE), Inc., 2023

Figure 4
3D Elevation

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Stormwater, Drainage, and Floodplain

The Project site is vacant vegetated land at an elevation of approximately 40 ± feet above mean sea level (msl) and is relatively flat with a slight slope to the northeast (CEC, 2023). The majority of the Project site is located within a 100-yr flood hazard area (CEC, 2023, Appendix D). Stormwater at the Project site is conveyed in a drainage ditch that runs from the southwest corner of the existing Linde facility and flows north along the western boundary of the Project site adjacent to the Linde rail spur, then crosses the Linde rail spur via a buried culvert and flows eastward across the Project site before exiting the property to the northeast and ultimately flowing into Kirker Creek (**Figure 2**). The primary source of stormwater within the onsite drainage ditch is from a lift station owned by the California Department of Transportation (CalTrans) that discharges stormwater collected along a portion of State Highway 4 into the ditch at the southwest property boundary (CEC, 2023). The Project site also receives stormwater discharge from the adjoining Linde facility to the east via a concrete headwall located in the southern corner of the Project site, from which stormwater traverses the site and flows offsite via the drainage channel to the northeast.

Energy Utilities

Air separation facilities consume 25 times the amount of electricity of a normal industrial customer and are often one of the Top 20 customers of the associated electric utility. Electricity would be provided to the Project site by Pacific Gas & Electric (PG&E). Natural gas would not be required for the Project. The additional peak and annual electricity demand from the Project is shown in **Table 2**.

TABLE 2 ADDITIONAL PEAK ELECTRICITY DEMAND FROM PROJECT

Year	Added Peak Demand (MW)	Added Annual Demand (MWh)
2025	3.0	26,280
2026	8.0	70,080
2027	9.0	78,840
2028	10.0	87,600
2029	11.0	96,360
2030	12.0	105,120
2031	12.0	105,120
2032	12.3	107,748

NOTE: Assumes peak demand for 8,760 hours per year. MW = megawatt. MWh = megawatt hour

SOURCE: Linde Inc., 2023.

The Project would also require an expansion of the existing 115/12.47 kilovolt (kV) substation on the parcel near the entry/exit on Loveridge Road. This would include adding one 115-12.47kV, 28 megavolt amperes (MVA) base transformer, one 115kV gas circuit breaker (GCB), and one lineup of 12.47kV outdoor metal-clad switchgear.

Water Supply

The Project would connect to the City's domestic water supply and typically use approximately 125 gallons per minute (gpm). Therefore, annual water usage would be approximately 65.7 million gallons per year.

Safety and Fire Protection

Though the products created are not poisonous and are nontoxic and nonflammable (we are breathing them), the cryogenic temperatures and extreme purity of the gases create their own hazards. Linde has met with the Contra Costa County Fire Protection District (CCCFPD) for training and tours of their existing facility and will continue to do so for the proposed expansion.

Construction Phasing and Schedule

Construction of the Project would occur intermittently over approximately 13 months from February 2024 through March 2025. Construction of the Project would require site preparation, grading, onsite utilities, paving, and equipment installation. Construction would require the import of 13,950 cubic yards of soil and approximately 45,500 square feet of paving.

9. Surrounding Land Uses and Setting:

The parcel is surrounded by industrial uses. As shown in **Figure 2**, Union Pacific Railroad and Pittsburg-Antioch Highway are north and the existing facility is to the south and east. The parcel is zoned General Industrial (IG) and is designated Industrial in the City's 2020 General Plan.

The Edgewater Apartments are roughly 800 feet southwest of the Project site. The nearest school, Martin Luther King Jr. Junior High School, is approximately 1,300 feet west of the Project site.

10. Required Agency Approvals:

The Project requires the City of Pittsburg to approve the CEQA document for the Use Permit and Design Review, and other related permits such as grading and building permits. The Project also requires a City Variance Application for the approval of the 137-foot distillation tower.

11. Tribal Consultation:

City of Pittsburg notified the following tribes requesting Assembly Bill (AB) 52 notification for projects subject to CEQA. As of October 6, 2023, no tribes have requested formal consultation.

1. The Ohlone Indian Tribe
2. Nashville Enterprise Miwok-Maidu-Nishinam Tribe
3. Confederated Villages of Lisjan Nation
4. Chicken Ranch Rancheria of Me-Wuk Indians
5. Guidiville Indian Rancheria

6. Indian Canyon Mutsun Band of Costanoan
7. Muwekma Ohlone Indian Tribe of the SF Bay Area
8. North Valley Yokuts Tribe
9. Amah Mutsun Tribal Band of Mission San Juan Bautista
10. Wilton Rancheria
11. Tule River Indian Tribe

References

Civil and Environmental Consultants, Inc. (CEC, 2023). *Phase I Environmental Site Assessment Report, North Portion of Linde Inc. Property, 2000 Loveridge Road, Pittsburg, CA 94965*. CEC Project 330-812. Prepared for Linde Inc. July 2023.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The proposed project could potentially affect the environmental factor(s) checked below. The following pages present a more detailed checklist and discussion of each environmental factor.

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

DETERMINATION: (To be completed by Lead Agency)

On the basis of this initial study:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, no further environmental documentation is required.

MauriceBaddow　　　　　　　　10/11/2023

Signature　　　　　　　　Date

Maurice Brenyah-Addow

Printed Name

AESTHETICS

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
1. AESTHETICS — Except as provided in Public Resources Code Section 21099, **would the proposed project:**				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point. If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?	☐	☐	☒	☐

Discussion

a) **No Impact.** The Project site is north of the existing facility in an industrial zone surrounded by similar production equipment. The existing visual character of the surrounding area is highly industrial. There are no identifiable scenic vistas in the immediate area of the Project. Thus, development of the Project would not result in substantial adverse effects to scenic vistas. Therefore, the Project would result in no impact.

b) **No Impact.** The Project site is not within or near a designated state scenic highway. There are no identifiable scenic resources within the Project site, such as historic buildings or rock outcroppings. The Project would not substantially damage scenic resources within a state scenic highway. Therefore, the Project would result in no impact.

c) **Less-than-Significant Impact.** The Project site is in an urbanized industrial area of the City and is adjacent to the existing facility. **Figure 4** shows the 3D elevation of the Project. Since the Project is within an urbanized area, a potential significant impact would occur if the Project conflicts with applicable zoning and other regulations governing scenic quality. The Project would require a City Variance Application for the approval of the 137-foot distillation tower to be consistent with applicable City zoning standards. With the required City Variance, the Project would not conflict with applicable zoning and other regulations governing scenic quality. Therefore, the Project would result in a less-than-significant impact.

d) **Less-than-Significant Impact.** The Project site is adjacent to Interstate 4 and nearby commercial and industrial buildings that require nighttime lighting. The Project would require lighting for nighttime operations and for safety/security purposes. There could be a potential increase of light and/or glare from the proposed lighting fixtures, albeit very minor since there are no sensitive receptors to lighting located in the Project vicinity, which is mostly compromised of surrounding industrial land uses. Outdoor light fixtures would be low-intensity, shielded and would use low-glare lamps or other similar lighting fixtures. Project development would comply with all applicable City lighting requirements. Therefore, the Project would result in a less-than-significant impact.

AGRICULTURAL AND FOREST RESOURCES

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
2. AGRICULTURAL AND FOREST RESOURCES — In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. **Would the proposed project:**				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Introduction

The Project site is zoned General Industrial (IG) and is designated Industrial in the City's 2020 General Plan. The Project site is not considered to be forest land or timberland and is not under a Williamson Act contract.

Discussion

a) **No Impact.** The Project site does not contain any areas of Farmland of Statewide Importance. The Project site would not convert any farmland or agricultural uses to non-agricultural uses. Therefore, the Project would result in no impact.

b) **No Impact.** The Project site has not been used for agriculture and is not under a Williamson Act contract. Therefore, the Project would result in no impact.

c, d) **No Impact.** There are no areas classified as forest land, timberland, or farmland within the vicinity of the Project that may be affected by the development of the Project. Therefore, the Project would result in no impact.

e) **No Impact.** The Project would not result in loss of farmland or forest land. Therefore, the Project would result in no impact.

AIR QUALITY

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
3. AIR QUALITY — Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. **Would the proposed project:**				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☒	☐	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

Introduction

This section describes construction and operational air quality impacts associated with the Project and is consistent with the methods described in the Bay Area Air Quality Management District (BAAQMD) *CEQA Air Quality Guidelines* (BAAQMD, 2023). Detailed modeling assumptions and results are provided in **Appendix A**. The health risk assessment (HRA) prepared for the Project is provided in **Appendix B**.

Setting

The Project site is located within the San Francisco Bay Area Air Basin (Air Basin), which encompasses Alameda, Contra Costa, Santa Clara, San Francisco, San Mateo, Marin, and Napa Counties, and the southern portions of Solano and Sonoma Counties.

Climate, Meteorology, and Topography

Air quality is affected by the rate, amount, and location of pollutant emissions and the associated meteorological conditions that influence pollutant movement and dispersal. Atmospheric conditions, including wind speed, wind direction, stability, and air temperature, in combination with local surface topography (i.e., geographic features such as mountains, valleys, and San Francisco Bay), determine the effect of air pollutant emissions on local air quality.

The climate of the Air Basin, including Pittsburg, is a Mediterranean-type climate characterized by warm, dry summers and mild, wet winters. The climate is determined largely by a high-pressure system that is often present over the eastern Pacific Ocean off the West Coast of North America. In winter, the Pacific high-pressure system shifts southward, allowing storms to pass through the region. During summer and fall, air emissions generated within the Bay Area can combine with abundant sunshine under the restraining influences of topography and subsidence inversions to create conditions that are favorable to the formation of photochemical pollutants, such as ozone and secondary particulates, such as sulfates and nitrates.

The Project site is within the Contra Costa County climatological subregion of the Air Basin, which is temperate due to its proximity to water and oceanic air flows. In winter, average daily temperatures are mild, with tule fog common at night. Average summer temperatures are typically mild overnight and warm during the day, with cooler temperatures and stronger winds more common along the western coast. Wind speeds are generally low throughout the subregion and winds typically blow from northwest to southwest. However, strong afternoon gusts are common in the around the Carquinez Strait. Annual rainfall averages between 18 and 23 inches across the subregion.

Criteria Air Pollutants

Concentrations of criteria air pollutants are used to indicate the quality of the ambient air. Criteria air pollutants include ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter less than 10 micrometers (coarse or PM10), particulate matter less than 2.5 micrometers (fine or PM2.5), and lead. Regulation of air pollutants is achieved through both national and state ambient air quality standards (AAQS) and emissions limits for individual sources. Regulations implementing the federal Clean Air Act and its subsequent amendments established national ambient air quality standards (NAAQS) for the six criteria pollutants. California has adopted more stringent California ambient air quality standards (CAAQS) for most of the criteria air pollutants. In addition, California has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. Because of the meteorological conditions in the state, there is considerable difference between state and federal standards in California.

The AAQS are intended to protect the public health and welfare, and they incorporate an adequate margin of safety. They are designed to protect those segments of the public most susceptible to respiratory distress, known as sensitive receptors, including asthmatics, the very young, elderly, people weak from other illness or disease, or persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollution levels somewhat above the ambient air quality standards before adverse health effects are observed.

Under amendments to the federal Clean Air Act, United States Environmental Protection Agency (U.S. EPA) has classified air basins or portions thereof, as either "attainment" or "non-attainment" for each criteria air pollutant, based on whether or not the NAAQS have been achieved. The California Clean Air Act, which is patterned after the federal Clean Air Act, also requires areas to be designated as "attainment" or "non-attainment" for the CAAQS. Thus, areas in California have two sets of attainment / non-attainment designations: one set with respect to the NAAQS and one set with respect to the CAAQS.

The Bay Area is currently designated "non-attainment" for 1-hour and 8-hour ozone CAAQS, the 8-hour ozone NAAQS, the PM10 CAAQS (annual and 24-hour), and the PM2.5 CAAQS (annual) and NAAQS (24-hour). The Bay Area is "attainment" or "unclassified" with respect to the other ambient air quality standards. Based upon the Bay Area's attainment status, pollutants of concern include criteria pollutant emissions such as nitrogen oxides (NO_x)[1], volatile organic compounds (VOC) as reactive organic gases (ROG)[2], PM10, and PM2.5.[3]

Toxic Air Contaminants

Toxic air contaminants (TACs) are regulated under both state and federal laws. Federal laws use the term "Hazardous Air Pollutants" (HAPs) to refer to the same types of compounds that are referred to as TACs under state law. Both terms encompass essentially the same compounds. Under the 1990 Federal Clean Air Act Amendments, 189 substances are regulated as HAPs.

With respect to state law, in 1983 the California legislature adopted Assembly Bill 1807 (AB 1807), which establishes a process for identifying TACs and provides the authority for developing retrofit air toxics control measures on a statewide basis. Air toxics in California may also be regulated because of another state law, the Air Toxics "Hot Spots" Information and Assessment Act of 1987, or Assembly Bill 2588 (AB 2588). Under AB 2588, TACs from individual facilities must be quantified and reported to the local air pollution control agency. The facilities are then prioritized by the local agencies based on the quantity and toxicity of these emissions, and on their proximity to areas where the public may be exposed. In establishing priorities, the air districts are to consider the potency, toxicity, quantity, and volume of hazardous materials released from the facility, the

1 When combustion temperatures are extremely high, as in aircraft, truck and automobile engines, atmospheric nitrogen combines with oxygen to form various oxides of nitrogen (NO_X). Nitric oxide (NO) and NO_2 are the most significant air pollutants generally referred to as NO_X. Nitric oxide is a colorless and odorless gas that is relatively harmless to humans, quickly converts to NO_2 and can be measured. Nitrogen dioxide has been found to be a lung irritant capable of producing pulmonary edema.
2 VOC means any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions and thus, a precursor of ozone formation. ROG are any reactive compounds of carbon, excluding methane, CO, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, and other exempt compounds. The terms VOC and ROG are often used interchangeably.
3 PM10 and PM2.5 consists of airborne particles that measure 10 micrometers or less in diameter and 2.5 micrometers or less in diameter, respectively. PM10 and PM2.5 represent fractions of particulate matter that can be inhaled into the air passages and the lungs, causing adverse health effects.

proximity of the facility to potential receptors, and any other factors that the air district determines may indicate that the facility may pose a significant risk. High priority facilities are required to perform a Health Risk Screening Assessment (HRSA), and if specific risk thresholds are exceeded, they are required to communicate the results to the public in the form of notices and public meetings. Depending on the health risk levels, emitting facilities can be required to implement varying levels of risk reduction measures. California Air Resources Board (CARB) identified approximately 200 TACs, including the 189 federal HAPs, under AB 2588.

BAAQMD is responsible for administering federal and state regulations related to TACs. Under federal law, these regulations include National Emission Standards for Hazardous Air Pollutants (NESHAPs) and Maximum Achievable Control Technology (MACT) for affected sources. BAAQMD also administers the state regulations AB 1807 and AB 2588 which were discussed above. In addition, the agency requires that new or modified facilities that emit TACs perform air toxics screening analyses as part of the permit application. TAC emissions from new and modified sources are limited through the air toxics new source review program, which superseded the BAAQMD Risk Management Policy, in BAAQMD Regulation 2, Rule 5 for New Source Review of Toxic Air Contaminants. Sources must use the Best Available Control Technology for Toxics (T-BACT) if an individual source cancer risk of greater than 1 in a million, or a chronic hazard index greater than 0.20, is identified in health risk modeling.

Local Air Quality

The BAAQMD maintains a network of monitoring stations within the Air Basin that monitor air quality and compliance with applicable ambient standards. The monitoring station closest to the Project site is the Concord Monitoring Station at 2975 Treat Boulevard, approximately 10 miles southwest of the Project site. The Concord Monitoring Station measures levels of ozone, PM10, PM2.5, and NO_2.

Table 3 summarizes the most recent three years of data (2019 through 2021) from the Concord Monitoring Station. The 1-hour ozone CAAQS was exceeded twice in 2020 and once in 2021. The 8-hour ozone CAAQS and NAAQS were exceeded twice in 2019, three times in 2020, and once in 2021. The 24-hour PM10 CAAQS and NAAQS were exceeded once in 2020. The 24-hour PM2.5 NAAQS was exceeded 16 times 2020 and twice in 2021. No other standards were exceeded at the Concord Monitoring Station during the three-year period.

Regional Air Quality Plans

The 1977 Clean Air Act amendments require that regional planning and air pollution control agencies prepare a regional Air Quality Plan to outline the measures by which both stationary and mobile sources of pollutants can be controlled in order to achieve all standards specified in the Clean Air Act. The 1988 California Clean Air Act also requires development of air quality plans and strategies to meet state air quality standards in areas designated as non-attainment (with the exception of areas designated as non-attainment for the state PM standards). Maintenance plans are required for attainment areas that had previously been designated non-attainment in order to ensure continued attainment of the standards. Air quality plans developed to meet federal requirements are referred to as State Implementation Plans.

TABLE 3 SUMMARY OF ANNUAL MONITORING DATA OF AMBIENT AIR QUALITY

Pollutant	Standard	2019	2020	2021
Ozone				
Maximum Concentration (1-hour/8-hour average)	ppm	0.092/**0.074**	**0.108/0.083**	**0.096/0.077**
Number of days State standard exceeded (1-hour/8-hour)	0.09/0.070	0/2	2/3	1/1
Number of days National standard exceeded (8-hour)	0.070	2	3	1
Coarse Particulate Matter (PM10)				
Maximum Concentration (24-hour)	μg/m^3	**34.8**	**165.4**	25.0
Number of days 24-hour standard exceeded (State/National)	50/150	0/0	1/1	0/0
Annual Average (State standard)	20	**	**	12.1
Fine Particulate Matter (PM2.5)				
Maximum Concentration (24-hour)	μg/m^3	28.2	**119.8**	**43.7**
Number of days National standard exceeded (24-hour measured/estimated)	35	0/0	16/16	2/2
Annual Average (State/National standard)	12/12.0	6.9/6.8	11.1/11/0	8.1/8.0
Nitrogen Dioxide (NO_2)				
Maximum Concentration (24-hour)	ppm	0.041	0.034	0.029
Number of days State standard exceeded (24-hour)	0.18	0	0	0
Annual Average (State standard)	0.030	0.005	0.005	0.005

NOTES:
ppm = parts per million, μg/m^3 = micrograms per cubic meter
bold values exceeded the State and/or National standard
** = insufficient data

SOURCE: CARB, *iADAM: Air Quality Data Statistics*, https://www.arb.ca.gov/adam, Accessed July 7, 2023.

Bay Area ozone levels have been greatly reduced in recent years, but the region still does not fully attain the CAAQS and NAAQS. The California Clean Air Act, as codified in the California Health & Safety Code, requires regional air districts that do not attain state ozone standards to prepare ozone plans. To that end, BAAQMD's 2017 Clean Air Plan serves to update the most recent Bay Area ozone plan, the 2010 Clean Air Plan. The Health & Safety Code requires that ozone plans propose a control strategy to reduce emissions of ozone precursors—ROG and NOx—and reduce transport of ozone and its precursors to neighboring air basins. The control strategy must either reduce emissions 5 percent or more per year, or include "all feasible control measures." Because reducing emissions of ozone precursors by 5 percent per year is not achievable, the control strategy for the 2017 Clean Air Plan is based on the "all feasible measures" approach.

2017 Clean Air Plan

The BAAQMD's *2017 Clean Air Plan* includes the Bay Area's first-ever comprehensive Regional Climate Protection Strategy, which identifies potential rules, control measures, and strategies that BAAQMD can pursue to reduce GHG emissions in the Bay Area. Measures of the 2017 Clean Air Plan addressing the transportation sector are in direct support of Plan Bay Area 2040, which was prepared by the Association of Bay Area Governments (ABAG) and the

Metropolitan Transportation Commission (MTC) and includes the region's transportation plan/ sustainable communities strategy. Highlights of the *2017 Clean Air Plan* control strategy include:

- *Limit Combustion*: Develop a region-wide strategy to improve fossil fuel combustion efficiency at industrial facilities, beginning with the three largest sources of industrial emissions: oil refineries, power plants, and cement plants.
- *Stop Methane Leaks*: Reduce methane emissions from landfills, and oil and natural gas production and distribution.
- *Reduce Exposure to Toxics*: Reduce emissions of toxic air contaminants by adopting more stringent limits and methods for evaluating toxic risks at existing and new facilities.
- *Put a Price on Driving*: Implement pricing measures to reduce travel demand.
- *Advance Electric Vehicles*: Accelerate the widespread adoption of electric vehicles.
- *Promote Clean Fuels*: Promote the use of clean fuels and low or zero carbon technologies in trucks and heavy-duty vehicles.
- *Accelerate Low-Carbon Buildings*: Expand the production of low-carbon, renewable energy by promoting on-site technologies such as rooftop solar and ground-source heat pumps.
- *Support More Energy Choices*: Support of community choice energy programs throughout the Bay Area.
- *Make Buildings More Efficient*: Promote energy efficiency in both new and existing buildings.
- *Make Space and Water Heating Cleaner*: Promote the switch from natural gas to electricity for space and water heating in Bay Area buildings.

Sensitive Receptors

Land uses such as schools, children's daycare centers, hospitals, and convalescent homes are considered to be more sensitive than the general public to poor air quality because the population groups associated with these uses have increased susceptibility to respiratory distress. Persons engaged in strenuous work or exercise also have increased sensitivity to poor air quality. The CARB has identified the following people as most likely to be affected by air pollution: children less than 14 years of age, the elderly over 65 years of age, athletes, and those with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive population groups.

Residential areas are considered more sensitive to air quality conditions than commercial and industrial areas, because people generally spend longer periods of time at their residences, resulting in greater exposure to ambient air quality conditions. Recreational uses are also considered sensitive, due to the greater exposure to ambient air quality conditions and because the presence of pollution detracts from the recreational experience. According to the BAAQMD, workers are not considered sensitive receptors because all employers must follow regulations set forth by the Occupation Safety and Health Administration to ensure the health and well-being of their employees. BAAQMD considers the relevant zone of influence for an assessment of air quality health impacts to be within 1,000 feet of a project site. The Edgewater Apartments are roughly 800 feet southwest of the Project site. The nearest school, Martin Luther King Jr. Junior High School, is approximately 1,300 feet west of the Project site.

Significance Criteria

As stated in Appendix G of the CEQA *Guidelines*, the significance criteria established by the applicable air quality district may be relied upon to make the above determinations. Thus, according to the BAAQMD's *CEQA Guidelines*, the Project would result in a significant impact to air quality if it would result in the following:

- Average daily construction exhaust emissions of 54 pounds per day of ROG, NO_x, or PM2.5 or 82 pounds per day of PM10;
- Average daily operation emissions of 54 pounds per day of ROG, NOx, or PM2.5 or 82 pounds per day of PM10; or result in maximum annual emissions of 10 tons per year of ROG, NOx, or PM2.5 or 15 tons per year of PM10;
- Exposure of sensitive receptors to substantial levels of TAC resulting in (a) a cancer risk level greater than 10 in one million, (b) a noncancerous risk (chronic or acute) hazard index greater than 1.0, or (c) an increase of annual average $PM_{2.5}$ of greater than 0.3 micrograms per cubic meter ($\mu g/m^3$).
- Frequently and for a substantial duration, create or expose sensitive receptors to substantial objectionable odors affecting a substantial number of people.

Discussion

a) **Less-than-Significant Impact.** BAAQMD's *2017 Clean Air Plan* provides a roadmap for BAAQMD's efforts over the next few years to reduce air pollution and protect public health and the global climate. The *2017 Clean Air Plan* identifies potential rules, control measures, and strategies that BAAQMD can pursue to reduce air quality and greenhouse gas emissions in the Bay Area. Determination of whether a project supports the goals in the *2017 Clean Air Plan* is achieved by a comparison of 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 is consistent with the goals of the *2017 Clean Air Plan*. As presented in the subsequent impact discussions, the Project would not exceed the BAAQMD significance thresholds; therefore, the Project would support the primary goals of the *2017 Clean Air Plan* and would not hinder implementation of any of the control measures. Therefore, the Project would result in a less-than-significant impact.

b) **Less-than-Significant Impact with Mitigation.** The Project would generate air pollutant emissions during temporary construction activities and long-term operations.

Temporary Construction Activities

Construction-related activities would generate air pollutant emissions from off-road equipment; on-road trucks used for material delivery and equipment hauling; and worker commute trips. Fugitive dust emissions would also be generated by ground disturbance and would vary as a function of soil silt content, soil moisture, wind speed, and acreage of disturbance.

Construction emissions were estimated using the California Emissions Estimator Model (CalEEMod) Version 2022.1.1.14 (CAPCOA, 2022) and are summarized in **Table 4**. Detailed modeling assumptions and results are provided in **Appendix A**.

TABLE 4 ESTIMATED PROJECT AVERAGE DAILY CONSTRUCTION EMISSIONS

Condition	ROG lbs/day	NOx lbs/day	PM10 [1] lbs/day	PM2.5 [1] lbs/day
2024 Construction	1.6	15.6	0.7	0.6
2025 Construction	0.3	2.4	0.1	0.1
BAAQMD Thresholds of Significance	54	54	82	54
Potentially Significant?	No	No	No	No

NOTES:

1 PM10 and PM2.5 construction thresholds of significance apply to exhaust emission only. Fugitive PM10 and PM2.5 (fugitive dust) are less than significant if best management practices are implemented.

SOURCE: CAPCOA, 2022.

BAAQMD's *CEQA Air Quality Guidelines* require that projects implement all of the basic best management practices (BMPs) for a project to have a less than significant construction-related fugitive dust emissions impact. **Mitigation Measure AQ-1** would reduce potentially significant fugitive dust impacts to a less-than-significant level. Therefore, the Project would result in a less-than-significant impact with mitigation.

Mitigation Measure AQ-1: The Applicant shall implement BAAQMD's basic BMPs for construction-related fugitive dust, which include:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off site shall be covered.
- 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.
- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour.

- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.

- All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.

- All trucks and equipment, including their tires, shall be washed off prior to leaving the site.

- Unpaved roads providing access to sites located 100 feet or further from a paved road shall be treated with a 6- to 12-inch layer of compacted wood chips, mulch, or gravel.

- A publicly visible sign shall be posted with the telephone number and person to contact at the City regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Long-Term Operations

Long-term operational activities would generate air pollutant emissions primarily from motor vehicles (four new employees and a maximum of 20 daily round truck trips – See **Table 1**.). Other minor emissions sources would include area sources such as cleaning chemicals/solvents. Operational emissions for year 2025 were estimated using the CalEEMod Version 2022.1.1.14 (CAPCOA, 2022) and are summarized in **Table 5**. Detailed modeling assumptions and results are provided in **Appendix A**.

TABLE 5 ESTIMATED PROJECT OPERATIONAL EMISSIONS

Source	ROG	NOx	PM10	PM2.5
Average Daily Operational Emissions (lbs)	0.2	14.3	3.5	1.1
BAAQMD Thresholds of Significance	54	54	82	54
Potentially Significant?	No	No	No	No
Annual Operational Emissions (tons)	0.0	2.6	0.6	0.2
BAAQMD Thresholds of Significance	10	10	15	10
Potentially Significant?	No	No	No	No

NOTES:
[1] Assumes an operational year of 2025.
SOURCE: CAPCOA, 2022.

As shown in **Table 5**, operational emissions would not exceed the BAAQMD's thresholds of significance. Therefore, the Project would result in a less-than-significant impact.

Cumulative Impacts

The BAAQMD *CEQA Air Quality Guidelines* recommend that cumulative air quality effects from criteria air pollutants also be addressed by comparison to the mass daily and annual thresholds. These thresholds were developed to identify a cumulatively considerable contribution to a significant regional air quality impact. As shown previously, the Project-related construction and operational emissions would be below the significance thresholds. Therefore, the Project would not be cumulatively considerable and cumulative impacts would be less-than-significant.

c) **Less-than-Significant Impact.** A HRA was prepared to evaluate potential health risks associated with exposure of TACs including DPM generated by heavy-duty offroad equipment, vehicle idling, and truck traffic, as well as VOC emissions from the proposed cooling tower. The HRA was prepared based on the California Office of Environmental Health Hazard Assessment (OEHHA)'s Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (OEHHA, 2015).

Table 6 displays the estimated maximum cancer risk values for existing residents and workers from Project construction and operations, which are well below BAAQMD's significance threshold of 10 in one million.

TABLE 6 ESTIMATED PROJECT MAXIMUM CANCER RISK SUMMARY

Maximum Exposure Scenario	Total Maximum Risk
Project Operations	
70-Year Exposure Resident	1.49
30-Year Exposure Resident	1.31
9-Year Exposure Resident	0.93
25-Year Exposure Worker	0.25
Project Construction	
2-Year Exposure Resident	0.09
2-Year Exposure Worker	0.01
BAAQMD Significance Threshold	10
Potentially Significant?	No
SOURCE: ECORP, 2023. **See Appendix B.**	

In addition to cancer risk, the BAAQMD significance thresholds for TAC exposure require an evaluation of non-cancer risk stated in terms of a hazard index and incremental PM2.5 concentration. **Table 7** displays the maximum estimated noncancer risk values for existing residents and workers from Project construction and operations, which are well below the respective BAAQMD significance thresholds.

TABLE 7 ESTIMATED PROJECT MAXIMUM NONCANCER RISK SUMMARY

	Noncancer Risk		
Exposure Scenario	**Maximum Residential Hazard (Chronic Hazard Index)**	**Maximum Worker Hazard (Chronic Hazard Index)**	**PM2.5 (ug/m^3)**
Operations	0.0003	0.0013	0.006
Construction	0.0001	0.0002	0.002
BAAQMD Significance Threshold	1	1	0.3
Potentially Significant?	No	No	No

SOURCE: ECORP, 2023. **See Appendix B.**

The Project would not expose nearby sensitive receptors to significant health risks as the Project would be below BAAQMD's health risk significance thresholds. Therefore, the Project would have a less-than-significant impact.

d) **Less-than-Significant Impact.** Project construction and operations would not generate odors that could adversely affect a substantial number of people. The Project uses air as the input for the process and the three liquid products (nitrogen, oxygen, and argon) are odorless. Therefore, the Project would result in a less-than-significant impact.

References

Bay Area Air Quality Management District (BAAQMD). 2023. *CEQA Air Quality Guidelines*. April 2023.

California Air Pollution Control Officers Association (CAPCOA). 2022. *California Emissions Estimator Model User's Guide.* May 2022. http://www.caleemod.com/. Accessed July 10, 2023.

California Air Resources Board (CARB). *iADAM: Air Quality Data Statistics*. https://www.arb.ca.gov/adam. Accessed July 7, 2023.

ECORP Consulting, Inc. (ECORP). 2023. *Health Risk Assessment for the Oakstone NorCal Expansion Project*. June 2023.

BIOLOGICAL RESOURCES

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
4. BIOLOGICAL RESOURCES — Would the proposed project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☒	☐	☐

Introduction

This section is based on the Biological Resources Memorandum (BRM) and East Contra Costa County Habitat Conservation Plan (ECCCHCP or HCP) Application Form and Planning Survey Report (PSR) prepared by Vollmar Natural Lands Consulting (VNLC), both of which are provided in **Appendix C** to this Initial Study.

The HCP is intended to provide an effective framework to protect natural resources in eastern Contra Costa County, while improving and streamlining the environmental permitting process for impacts on endangered species. The HCP will allow Contra Costa County (County), the Contra Costa County Flood Control and Water Conservation District (County Flood Control District), the East Bay Regional Park District (EBRPD) the Cities of Brentwood, Clayton, Oakley, and Pittsburg and the Implementing Entity that will be established to implement the Plan (collectively, the Permittees) to control endangered species permitting for activities and projects in the region that they perform or approve. The HCP will also provide for comprehensive species, wetlands, and ecosystem conservation and contribute to the recovery of endangered species in northern California. The HCP will avoid project-by-project permitting that is generally costly and time consuming for applicants and often results in uncoordinated and biologically ineffective mitigation (ECCCHCP Association, 2007).

Existing Setting

In general, the anticipated permanent and temporary impact areas of the Project site consist of urban (industrial), ruderal grassland, and non-native woodland (See mapped cover land types on Figure 2 of the PSR, see **Appendix C** of this Initial Study). The study area (outside of the impact areas but within the greater parcel) includes seasonal and perennial wetlands, drainage features, and riparian woodland. These sensitive resources are avoided by the Project.

Discussion

a, d, f) **Less-than-Significant Impact with Mitigation.** As part of the PSR development process, VNLC conducted a reconnaissance-level site assessment of the study area (the Project impact areas [permanent and temporary] and surrounding areas of the parcel, approximately 4.5 acres) on June 23, 2023, which followed previous PSR surveys of the site in 2018 and 2019. VNLC also performed a California Natural Diversity Database (CNDDB) search and Information for Planning and Consultation (IPaC) database search for special-status plants and animals not included in the HCP that have potential to occur in the Project vicinity.

Listed and Special-Status Plants

The study area overlaps with a legacy observation of Big tarplant (*Blepharizonia plumosa*) dating from 1937 and presumed extant by CNDDB. Rare plants were not observed during any site visit (2018, 2019 or 2023) and are not expected in the Project area although none of the surveys were focused rare plant surveys. A total of 89 special-status plant species may be present in the Project region (Table 2 of the BRM, see **Appendix C** of this Initial Study) using the CNDDB and the California Native Plant Society (CNPS) Rare Plant Inventory nine quad search tool. By and large, these plants are not expected to be present in the Project impact areas due to the high level of site disturbance (regular mowing, scraping, and dense cover of invasive annual grassland taxa).

Listed and Special-Status Animals

The study area contains suitable habitat for the following three special-status species covered by the HCP:

1) **Golden Eagle** (Aquila chrysaetos) (State Fully Protected Species)
2) **Western Burrowing Owl** (*Athene cunicularia*) (State Species of Special Concern)
3) **Swainson's Hawk** (*Buteo swainsonii*) (Federally Threatened)

The following three special-status species are not covered by the HCP, but also have potential to occur:

1) **Song Sparrow** ("Modesto" Population) (Melospiza melodia pop. 1) (State Species of Special Concern)

2) **White-tailed Kite** (Elanus leucurus) (State Fully Protected Species)

3) **Western Red Bat** (Lasiurus frantzii) (State Species of Special Concern)

Migratory Bird Treaty Act (MBTA) protected bird taxa may create nests in the various habitat types both in the impact areas (urban, ruderal grassland and non-native woodland) as well as the surrounding habitat types (riparian woodland, seasonal and perennial wetlands). The MBTA [16 U.S.C. 704] and the California Fish and Game Code [Section 3503] protects specific bird taxa. Any construction during the regional nesting bird season (approximately February 1 to September 1) should include avoidance measures, including a pre-construction survey for any nesting activity.

The reconnaissance-level site assessment of the study area found no evidence of the species listed above. However, due to suitable habitat for the species listed above, the implementation of **Mitigation Measures BIO-1** through **BIO-5** would mitigate any potentially significant impacts related to substantial direct and indirect impacts to habitat and special-status species, substantial interference with the movement of wildlife species, and conflicts with the HCP.

Furthermore, the Project would be required to pay a Development Fee (that amounts to a per acre value) to receive coverage under the HCP. Payment of the Development Fee would address the loss of upland habitat potentially used special-status species and contribute towards the regional strategy for preserving viable populations.

Mitigation Measure BIO-1: As required by the HCP, the Project shall implement the following avoidance measures for potential effects on Burrowing Owl during construction:

1. Prior to any ground disturbance, a U.S. Fish and Wildlife Service (USFWS)/California Department of Fish and Wildlife (CDFW) qualified biologist shall conduct a pre-construction survey of the study area for Burrowing Owls. The pre-construction survey shall establish the presence or absence of western burrowing owl and/or habitat features and evaluate use by owls in accordance with CDFW survey guidelines (California Department of Fish and Game, 1993).

On the parcel where the activity is proposed, the biologist shall survey the proposed disturbance footprint and a 500-foot radius from the perimeter of the proposed footprint to identify burrows and owls. Adjacent parcels under different land ownership shall not be required to be surveyed. Surveys should take place near sunrise or sunset in accordance with CDFW guidelines. All burrows or burrowing owls shall be identified and mapped. Surveys shall take place no more than 30 days prior to construction. During the breeding season (February 1– August 31), surveys shall document whether Burrowing Owls are nesting in or directly adjacent to disturbance areas. During the non-breeding season (September 1–January 31), surveys shall document whether burrowing owls are using habitat in or directly adjacent to any disturbance area. Survey results shall be valid only for the season (breeding or non-breeding) during which the survey is conducted.

2. If burrowing owls are found during the breeding season (February 1– August 31), the Project applicant shall avoid all nest sites that could be disturbed by Project construction during the remainder of the breeding season or while the nest is occupied by adults or young. Avoidance shall include establishment of a non-disturbance buffer zone (described below). Construction may occur during the breeding season if a qualified biologist monitors the nest and determines that the birds have not begun egg-laying and incubation or that the juveniles from the occupied burrows have fledged. During the non-breeding season (September 1– January 31), the Project applicant shall avoid the owls and the burrows they are using, if possible. Avoidance shall include the establishment of a buffer zone (described below).

3. If occupied burrows for Burrowing Owls are not avoided, passive relocation shall be implemented. Owls shall be excluded from burrows in the immediate impact zone and within a 160-foot buffer zone by installing one-way doors in burrow entrances. These doors shall be in place for 48 hours prior to excavation. The Project area shall be monitored daily for 1 week to confirm that the owl has abandoned the burrow. Whenever possible, burrows shall be excavated using hand tools and refilled to prevent reoccupation (California Department of Fish and Game 1995). Plastic tubing or a similar structure shall be inserted in the tunnels during excavation to maintain an escape route for any owls inside the burrow.

Mitigation Measure BIO-2: As required by the HCP, the Project shall implement the following avoidance measures for potential effects on Golden Eagles during construction:

1. Prior to implementation of construction activities, a qualified biologist shall conduct a pre-construction survey to establish whether an active golden eagle nest is present within the study area. If an occupied nest is present, minimization requirements and construction monitoring shall be required, as detailed below.

2. Construction activities shall be prohibited within 0.5 mile of active nests. Nests can be built and active at almost any time of the year, although mating and egg incubation occurs late January through August, with peak activity in March through July. If site-specific conditions or the nature of the construction activity (e.g., steep topography, dense vegetation, limited activities) indicate that a smaller buffer could be appropriate or that a larger buffer should be implemented, the Implementing Entity shall coordinate with CDFW/USFWS to determine the appropriate buffer size.

3. Construction monitoring shall ensure that no construction activities occur within the buffer zone established around an active nest. Construction monitoring shall ensure that direct effects to Golden Eagles are avoided.

Mitigation Measure BIO-3: As required by the HCP, the Project shall implement the following avoidance measures for potential effects on Swainson's Hawks during construction:

1. Prior to any ground disturbance related to covered activities that occurs during the nesting season (March 15–September 15), a qualified biologist shall conduct a preconstruction survey no more than 1 month prior to construction to establish whether Swainson's hawk nests within 1,000 feet of the Project site are occupied. If potentially occupied nests within 1,000 feet are off the Project site, then their occupancy shall be determined by observation from public roads or by observations of Swainson's hawk activity (e.g., foraging) near the Project site. If nests are occupied, minimization measures and construction monitoring are required (see below).

2. During the nesting season (March 15–September 15), covered activities within 1,000 feet of occupied nests or nests under construction shall be prohibited to prevent nest abandonment. If site-specific conditions or the nature of the covered activity (e.g., steep topography, dense vegetation, limited activities) indicate that a smaller buffer could be used, the Implementing Entity shall coordinate with CDFW/USFWS to determine the appropriate buffer size.

3. If young fledge prior to September 15, covered activities can proceed normally. If the active nest site is shielded from view and noise from the project site by other development, topography, or other features, the Project applicant can apply to the Implementing Entity for a waiver of this avoidance measure. Any waiver must also be approved by USFWS and CDFW. While the nest is occupied, activities outside the buffer can take place.

4. All active nest trees shall be preserved on site, if feasible. Nest trees, including non-native trees, lost to covered activities shall be mitigated by the Project proponent according to the requirements below in **Mitigation Measure BIO-4**.

Mitigation Measure BIO-4: If Project-related disturbance activities commence anytime during the nesting/breeding season of native bird species potentially nesting on or near the study area (typically February through August in the Project region), a pre-construction survey for nesting birds shall be conducted by a qualified biologist within two weeks of the commencement of construction activities.

If active nests are found in areas that could be directly affected or are within 300 feet of disturbance activities and would be subject to prolonged construction-related noise, a no-disturbance buffer zone shall be created around active nests during the breeding season or until a qualified biologist determines that all young have fledged. The size of the buffer zones and types of construction activities restricted within them shall be a minimum of 50 feet, and may be enlarged by considering factors such as the following:

- Noise and human disturbance levels at the construction site at the time of the survey and the noise and disturbance expected during the construction activity;
- Distance and amount of vegetation or other screening between the construction site and the nest; and
- Sensitivity of individual nesting species and behaviors of the nesting birds.

Mitigation Measure BIO-5: If Project activities take place during the Western red bat maternity roosting period between May 1 and August 31 (when pre-flight/nursing young may be present), then a qualified biologist shall conduct a roosting habitat evaluation to assess potential roosting habitat in the study area.

If potential roosting habitat is identified in the roosting habitat evaluation, then a preconstruction maternity roost survey shall be conducted within 3 days of equipment staging or initial ground disturbance. The survey will observe a 300-foot buffer around the Project footprint to determine if a maternity roost is present, and to identify and map potential maternity roost sites. If active maternity roost sites are found, then a 300-foot no-disturbance buffer shall be observed around potential maternity roost sites. The buffer shall be maintained until bats have vacated the roost and Wildlife Agencies concur that the roost is vacant.

If Project activities take place during the winter months (November 1 through March 31), then a qualified biologist shall conduct a winter hibernaculum survey. If an active winter hibernaculum is found within 300 feet of the Project footprint, then a 300-foot no disturbance buffer shall be observed around the hibernaculum until the bats have vacated and the agencies concur that the hibernaculum is vacant.

b, c) **Less-than-Significant Impact with Mitigation.** Potential jurisdictional wetlands were identified in the immediate vicinity of the Project impact areas of the 2018 delineation of aquatic features as well as the 2023 PSR reconnaissance-level survey and habitat assessment. No formal delineation covers the area west of the railroad tracks, which includes the potential temporary impact area (staging area). The Project's permanent footprint (expansion boundary) was designed to avoid sensitive resources such as the seasonal and perennial wetlands, drainage features, and riparian woodland on the greater parcel. **Mitigation Measure BIO-6** would ensure that these sensitive resources would be avoided by the Project.

Mitigation Measure BIO-6: Prior to ground disturbing activities, a qualified biologist shall conduct an aquatic resources delineation covering the Project area to confirm current wetland boundaries and ensure avoidance of these features.

e) **No Impact.** The Project would not conflict with any local policies or ordinances for protecting biological resources. There are no trees within the permanent impact area. Although not anticipated, if the use of staging areas requires tree removal, permits would be obtained as required by City of Pittsburg Zoning Code (Chapter 18.84, Special Land Use Regulations Applicable to Specific Uses, Article XIX. Tree Preservation and Protection). Therefore, the Project would result in no impact.

References

ECCCHCP Association, 2007. *Final East Contra Costa County Habitat Conservation Plan/ Natural Community Conservation Plan.* October 2007.

CULTURAL RESOURCES

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
5. CULTURAL RESOURCES — Would the proposed project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to in §15064.5?	☐	☐	☒	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☒	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

Introduction

This section is based on a Cultural Resources Technical Memorandum conducted by Solano Archaeological Services (SAS) in July 2023. The Cultural Resources Technical Memorandum is **Appendix D** to this Initial Study and contains regulatory and environmental setting, Native American outreach details, records search results, and other information such as field survey methods and results.

SAS completed a cultural and paleontological resources investigation of the Project site. The investigation included a records search with the Northwestern Information Center (NWIC) of the California Historical Resources Information System (CHRIS), Sacred Lands File (SLF) search with the Native American Heritage Commission (NAHC), additional archival research focused on historical mapping and land transfer records, and field survey in June 2023.

The records search results indicated that no cultural resources have been previously recorded within the Project site, but 17 resources had been documented within one-quarter mile. The SLF search returned negative results for Native American resources in the Project vicinity. The additional archival research did indicate there are cultural or paleontological resources on the Project site. No cultural or paleontological resources of any kind were identified during the field survey.

Discussion

a) **Less-than-Significant Impact.** Historic mapping, aerial photographs, and archival research indicate that no developments occurred within the Project area prior to the mid-1960s. Consequently, SAS concluded that there is very little chance that any intact and potentially significant historic-era resources pre-dating the mid-20th century could be present within the Project area. There is a standard-gauge rail spur that extends from the railroad line that generally constitutes the Project's northern boundary. The railroad line (Union Pacific, formerly Southern Pacific) is presently listed on the National Register of Historic Places (NRHP). However, the railroad spur in the Project area was built long after the railroad's early 20th century period of significance and having been built around 1965 it is not considered a contributing element to the rail system from that time. The railroad spur also does not meet the other criteria for listing under the California Register of Historic Resources (CRHR) (see **Appendix D**). Therefore, the Project would result in a less-than-significant impact.

b) **Less-than-Significant Impact.** Archival research and an intensive field survey did not identify any significant archaeological or cultural resources within the Project area. Map and aerial photography reviews show only a small seasonal drainage in the Project vicinity. While such drainages have been the focus of prehistoric habitation and activities, no evidence has been uncovered suggesting this unremarkable channel was ever subject to even short-term early Native American occupation. However, the proximity of the San Joaquin River to the north and several ethnographic settlements to the east suggest the general area was occupied and the vicinity of the Project area was probably exploited for a diverse array of natural resources. As such, SAS concluded that the Project area exhibits a low/moderate level of sensitivity for retaining traces of early Native American activity. Due to a lack of identified cultural resources and sensitive landforms, the Project would result in a less-than-significant impact.

c) **Less-than-Significant Impact with Mitigation.** No cultural resources such as cemeteries or burial areas were identified on or within the vicinity of the Project site during the records search and field survey. **Mitigation Measure CUL-1** would mitigate any potentially significant impacts related to the discovery or recognition of human remains or associated funerary artifacts during Project construction.

> **Mitigation Measure CUL-1**: If human remains or any associated funerary artifacts are discovered during construction, all work shall cease within the immediate vicinity of the discovery. In accordance with the California Health and Safety Code (Section 7050.5), the Contra Costa County Sheriff/Coroner must be contacted immediately. If the Coroner determines the remains to be Native American, the Coroner will notify the Native American Heritage Commission, which will in turn appoint a Most Likely Descendent (MLD) to act as a tribal representative. The MLD will work with the Applicant and a qualified archaeologist to determine the proper treatment of the human remains and any associated funerary objects. Construction activities shall not resume until either the human remains are exhumed, or the remains are avoided via Project construction design change.

References

Solano Archaeological Services (SAS), 2023. *Project Oakstone Northern California Expansion Project, City of Pittsburg, Contra Costa County, California.* July 3, 2023.

ENERGY

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
6. ENERGY — Would the proposed project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

Introduction

Energy resources required for the Project would include electricity and petroleum fuels. These energy resources would be required for facility equipment and vehicles supporting the Project. Energy resources would also be consumed by onsite equipment and vehicles required for construction of the Project.

Setting

The following presents setting information applicable to the Project. Since no buildings would be constructed with the Project, the California Building Energy Efficiency Standards (Title 24, Part 6) and California Green Building Standards Code (Title 24, Part 11) are not discussed.

Senate Bill 100

SB 100 mandates that the California Public Utilities Commission (CPUC), California Energy Commission (CEC), and CARB plan for 100 percent of total retail sales of electricity in California to come from eligible renewable energy resources and zero carbon resources by December 31, 2045. SB 100 also updates the state's Renewables Portfolio Standard (RPS) to include the following interim targets:

- 44% of retail sales procured from eligible renewable sources by December 31, 2024.
- 52% of retail sales procured from eligible renewable sources by December 31, 2027.
- 60% of retail sales procured from eligible renewable sources by December 31, 2030.

Under SB 100, the CPUC, CEC, and CARB shall use programs under existing laws to achieve 100 percent clean electricity. The statute requires these agencies to issue a joint policy report on SB 100 every four years. The first of these reports was issued in 2021.

Assembly Bill 32, Senate Bill 32, and Climate Change Scoping Plans

Reducing greenhouse gas (GHG) emissions in California has been the focus of the state government for approximately two decades. GHG emission targets established by the state legislature include reducing statewide GHG emissions to 1990 levels by 2020 (AB 32 of 2006) and reducing them to 40 percent below 1990 levels by 2030 (SB 32 of 2016). Executive Order S-3-05 calls for statewide GHG emissions to be reduced to 80 percent below 1990 levels by 2050.

CARB's *2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan)* was adopted in December 2022. The three previous scoping plans focused on specific GHG reduction targets for the state's industrial, energy, and transportation sectors — first to meet 1990 levels by 2020, then to meet the more aggressive target of 40 percent below 1990 levels by 2030. The *2022 Scoping Plan* addresses recent legislation and direction from Governor Newsom, extending and expanding upon earlier scoping plans with a target of reducing anthropogenic emissions to 85 percent below 1990 levels by 2045.

California plans to significantly reduce GHG emissions from the energy sector through the development of renewable electricity generation in the form of solar, wind, geothermal, hydraulic, and biomass generation. The State continues to increase statewide renewable energy to 60 percent by 2030 and 100 percent by 2045, as directed by SB 100. Additionally, as called for in Executive Order N-79-20, all new passenger vehicles sold in California will be zero-emission by 2035, and all other fleets will have transitioned to zero-emission as fully possible by 2045.

Low Carbon Fuel Standard

Under the Climate Change Scoping Plan, the CARB identified the low carbon fuel standard (LCFS) as one of the nine discrete early action measures to reduce California's GHG emissions. The LCFS is designed to decrease the carbon intensity of California's transportation fuel pool and provide an increasing range of low-carbon and renewable alternatives, which reduce petroleum dependency and achieve air quality benefits.

In 2018, the CARB approved amendments to the regulation, which included strengthening and smoothing the carbon intensity benchmarks through 2030 in-line with California's 2030 GHG emission reduction target enacted through SB 32, adding new crediting opportunities to promote zero emission vehicle adoption, alternative jet fuel, carbon capture and sequestration, and advanced technologies to achieve deep decarbonization in the transportation sector.

Electricity

Electricity service is provided to the Project site by Pacific Gas & Electric (PG&E). In 2022, statewide electricity generation was 194,320 gigawatt hours (GWh) of electric power. (CEC, 2023a).

Petroleum Fuels

In 2021, California gasoline sales were approximately 11,618 million gallons, and diesel fuel sales were approximately 1,611 million gallons (CEC, 2023b).

Discussion

a) **Less-than-Significant Impact.** The Project would consume energy resources during temporary construction activities and long-term operations.

Temporary Construction Activities

Construction activities are a temporary and one-time direct source of energy consumption. Construction activities would consume petroleum fuels (primarily diesel and gasoline) through the operation of heavy off-road equipment, trucks, and worker automobiles. Electricity could be used for lighting and other equipment such as air compressors, however the amount consumed would be negligible.

Construction fuel usage was estimated using CalEEMod (CAPCOA, 2022). Detailed modeling assumptions and results are provided in **Appendix A**. Project construction was estimated to require approximately 62,700 gallons of diesel and approximately 2,700 gallons of gasoline.

Construction activities would occur intermittently for approximately 13 months. Construction of the Project would utilize fuel efficient equipment and trucks consistent with state regulations and would be consistent with state regulations intended to reduce the inefficient, wasteful, or unnecessary consumption of energy, such as anti-idling and emissions regulations. Furthermore, construction contractors are economically incentivized to employ energy efficient techniques and practices to reduce fuel use to lower overall construction costs.

In light of these statutory and regulatory requirements, the consumption of energy resources during Project construction would not result in a wasteful, inefficient, or unnecessary consumption of energy resources. Therefore, Project construction would result in a less-than-significant impact.

Long-Term Operations

Long-term energy consumption associated with the Project operations would include electricity and petroleum fuel consumption. Electricity would be consumed by facility equipment. Petroleum fuels would primarily be consumed by vehicles supporting Project operations. Operational energy consumption was estimated using the CalEEMod Version 2022.1.1.14 (CAPCOA, 2022). Detailed modeling assumptions and results are provided in **Appendix A.**

As noted in the Project Description and **Table 2**, the Project is estimated to require an added peak demand at full buildout of 12.3 MW (by 2032) and would consume approximately 107,748 MWh per year. Motor vehicles for Project operations were estimated to consume approximately 208,000 gallons of diesel and approximately 2,900 gallons of gasoline.

The electricity delivered by PG&E and consumed by the Project would be subject to SB 100 and the state's RPS, which requires increasing renewable energy to 60 percent by

2030 and 100 percent by 2045. PG&E delivers some of the nation's cleanest electricity to customers, with 93 percent from GHG-free resources in 2021. The associated emissions rate is nearly 90 percent cleaner than the latest national average among energy providers (PG&E, 2022).

Petroleum fuels consumed by the Project would decrease over time in accordance with Executive Order N-79-20, which requires all new passenger vehicles sold in California to be zero-emission by 2035, and all other fleets to transition to zero-emission as fully possible by 2045.

The products created by the Project are hyper-critical to the economy. There are only three air separation plants in the Bay area, the other two are in Vacaville and Santa Clara. For example, these three bay area plants supplied medical oxygen to every COVID ventilator at every Bay Area hospital during the recent pandemic. While the Project would consume energy resources during operation, the consumption of such resources would not result in a wasteful, inefficient, or unnecessary consumption of energy resources. Therefore, Project operation would result in a less-than-significant impact.

b) **No Impact.** The Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. There are no renewable energy or energy efficiency plans applicable to the Project. Therefore, the Project would result in no impact.

References

California Air Pollution Control Officers Association (CAPCOA). 2022. *California Emissions Estimator Model User's Guide.* May 2022. http://www.caleemod.com/. Accessed July 10, 2023.

California Energy Commission (CEC). 2023a. *Electric Generation Capacity and Energy.* https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/electric-generation-capacity-and-energy. Accessed on July 8, 2023.

California Energy Commission (CEC). 2023b. *California Retail Fuel Outlet Annual Reporting Results.* https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/california-retail-fuel-outlet-annual-reporting. Accessed on July 8, 2023

Pacific Gas & Electric (PG&E). 2022. *PG&E Climate Strategy Report*. June 2022.

GEOLOGY AND SOILS

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
7. GEOLOGY AND SOILS — Would the proposed project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐

Introduction

Geologic Setting

The geology of Contra Costa County is dominated by several northwest trending fault systems that divide the County into large blocks of rock, which are characterized by four predominant geologic formations: the Franciscan formation, the Great Valley Sequence, Tertiary-age[4] formations, younger (Quaternary-age[5]) sedimentary deposits, and modern sediments of the San Francisco Bay estuary and delta lowlands (Contra Costa County, 2005). Bedrock in these

[4] The Tertiary Period spans from about 66 million years to 2.6 million years ago.
[5] The Quaternary age started 2.6 million years ago and extends into the present. It contains the Holocene, which started 11,700 years ago, and the Pleistocene Epochs

formations include hard sandstone, chert, shale, volcanics, and younger, less consolidated rocks. Quaternary-age units include unconsolidated to consolidated alluvium, and colluvium, while the modern bay sediments consist primarily of soft, water saturated muds, peat and loose sands. The major faults in this region include the active portion of the Concord fault, which has experienced historic displacement in the last 200 years, and the Clayton/Marsh Greenville faults, which have experienced Holocene displacement (within 11,700 years) without historic record. Older (Quaternary and Pre-Quaternary) faults including the Davis fault, Rio Vista fault and Kirby Hills fault; these faults have not experienced displacement within the last 700,000 years.

The Project site is underlain by Quaternary sediments mapped as Pleistocene-age[6] alluvial fan deposits that originated from the uplands of the Black Hills to the south. These sediments contain mostly clay and silt but also include mixtures of sand and gravel in varying degrees of consolidation. Exploratory boring logs advanced at an adjacent property to the west of the Project site confirm the presence of hard, dry to moist, highly plastic clay, containing some sand and gravel, which were encountered from the near surface to a depth of approximately 30 feet (AECOM, 2020). According to the U.S. Department of Agriculture, Natural Resource Conservation Service (NRCS), soils covering the site are mapped as Capay clay (0-3 percent slopes). Capay clay soils are derived from clayey alluvium and are moderately well-drained (NRCS, 2023). However, because this site has remained vacant in an industrial setting for many years, there is a possibility that these soils have been disturbed, reworked, or mixed with other soil types or artificial fill during previous construction on land adjacent to the Project site. The Concord fault is located 10 miles to the west-southwest and is the closest fault exhibiting historic displacement (less than 200 years). The Clayton fault is located 6 miles southwest of the Project site. The Davis fault, Kirby Hills fault and Rio Vista faults are located 3, 6, and 10 miles, respectively, from the Project site (CGS, 2023).

Regulatory Framework

Seismic Hazard Mapping Act

The State of California passed the Seismic Hazards Mapping Act (SHMA) of 1990 (Public Resources Code sections 2690–2699) to address the effects of strong ground shaking, liquefaction, landslides, and other ground failures due to seismic events. Under the Seismic Hazards Mapping Act, the State Geologist is required to delineate “seismic hazard zones.” Cities and counties must regulate certain development projects within these zones until the geologic and soil conditions of their project sites have been investigated and appropriate mitigation measures, if any, have been incorporated into development plans. The State Mining and Geology Board provides additional regulations and policies to assist municipalities in preparing the Safety Element of their General Plan and encourage land use management policies and regulations to reduce and mitigate those hazards to protect public health and safety. Under Public Resources Code section 2697, cities and counties must require, prior to the approval of a project located in a seismic hazard zone, submission of a Preliminary Geotechnical Report defining and delineating any seismic hazard.

[6] The Pleistocene Epoch spanned from 2.6 million years ago to 11,700 years ago.

State publications supporting the requirements of the SHMA include the CGS SP 117A, *Guidelines for Evaluating and Mitigating Seismic Hazards in California*, discussed above, and SP 118, *Recommended Criteria for Delineating Seismic Hazard Zones in California* (2004). SP 117A provides guidelines to assist in the evaluation and mitigation of earthquake-related hazards for projects within designated zones requiring investigations and to promote uniform and effective Statewide implementation of the evaluation and mitigation elements of the SHMA. SP 118 provides recommendations to assist the CGS in carrying out the requirements of the SHMA to produce the Probabilistic Seismic Hazard Maps for the State. The area of Pittsburg that includes the Project site has been evaluated by the CGS and is zoned as a liquefaction hazard zone under the SHMA. It should be noted that the proposed development of the Project site with air separation equipment is not considered a "Project" as defined under the SHMA. The SHMA defines a "Project" as any structures for human occupancy, or any subdivision of land that contemplates the eventual construction of structures for human occupancy.

California Building Code

The California Building Code (CBC), which is codified in Title 24 of the California Code of Regulations, Part 2, was promulgated to safeguard the public health, safety, and general welfare by establishing minimum standards related to structural strength, means of egress facilities, and general stability of buildings. The purpose of the CBC is to regulate and control the design, construction, quality of materials, use/occupancy, location, and maintenance of all buildings and structures within its jurisdiction. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under State law, all building standards must be centralized in Title 24 or they are not enforceable. The provisions of the CBC apply to the construction, alteration, movement, replacement, location, and demolition of every building or structure, or any appurtenances connected or attached to such buildings or structures throughout California (DGS, 2020).

The 2022 edition of the CBC is based on the 2021 International Building Code (IBC) published by the International Code Council. The code is updated triennially, and the 2022 edition of the CBC, which was published by the California Building Standards Commission, took effect starting January 1, 2023. The 2022 CBC contains California amendments based on the American Society of Civil Engineers (ASCE) Minimum Design Standard ASCE/SEI 7-16, Minimum Design Loads for Buildings and Other Structures, provides requirements for general structural design and includes means for determining earthquake loads as well as other loads (such as wind loads) for inclusion into building codes. Seismic design provisions of the building code generally prescribe minimum lateral forces applied statically to the structure, combined with the gravity forces of the dead and live loads of the structure, which the structure then must be designed to withstand. The prescribed lateral forces are generally smaller than the actual peak forces that would be associated with a major earthquake. Consequently, structures should be able to: (1) resist minor earthquakes without damage, (2) resist moderate earthquakes without structural damage but with some nonstructural damage, and (3) resist major earthquakes without collapse, but with some structural as well as nonstructural damage. Conformance to the current building code recommendations does not constitute any kind of guarantee that substantial structural damage would not occur in the event of a maximum magnitude earthquake. However, it is reasonable to expect that a structure designed in-accordance with the seismic requirements of the CBC should not collapse in a major earthquake (DGS, 2020/2023).

Discussion

a.i) **No Impact.** Earthquake faults that are delineated under the Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) are typically considered sufficiently active and well-defined and have experienced displacement within Holocene time (about the last 11,000 years) (Bryant and Hart, 2007). Faults that are zoned under the Alquist-Priolo Act can rupture at the surface during an earthquake causing considerable damage to structures and utilities. The Project site is not located within an Alquist-Priolo Earthquake Fault Zone and is approximately 10 miles from the nearest fault (the Concord fault) capable of causing surface rupture. There are no mapped traces of older faults extending through the Project site. Therefore, there is no potential for the Project site to experience surface fault rupture from a known mapped earthquake fault. Therefore, there is no impact.

a.ii) **Less-than-Significant Impact.** Major factors that affect the severity (intensity) of ground shaking include the size (magnitude) of the earthquake, the distance to the fault that generated the earthquake, and the underlying geologic materials. Seismic ground shaking from regional fault zones, including those along the Green Valley, Concord, or Clayton faults, as well as other major faults in the San Francisco Bay Area (namely, the San Andreas fault and the Hayward-Rodgers Creek fault) could affect the Project site. Contra Costa County will likely experience ground shaking from a major regional earthquake during the life of the Project. The 2014 Working Group on California Earthquake Probabilities concluded from its updated 30-year earthquake forecast for California that there is a 72-percent probability of at least one earthquake of magnitude 6.7 or greater occurring somewhere in the San Francisco Bay region before 2043 (USGS, 2016). There is a 22 percent chance of a magnitude 6.7 earthquake occurring between now and 2043 on the San Andreas fault and a 33 percent chance on the Hayward-Rodgers Creek fault. The probability of a similar event occurring on the Concord/Greenville fault is 16 percent (USGS, 2016).

The Project site is in an area where local ground conditions vary and is considered to have a moderate susceptibility to earthquake damage. In these areas, sound structures on firm dry alluvium typically perform satisfactorily (Contra Costa County, 2005). Structural damage and injury during an earthquake are inherent risks in seismically active regions such as Contra Costa County. Ground shaking could cause some structural damage and possibly injure those at the Project site. However, Contra Costa County and CBC requirements are developed to address projected structural response to ground shaking and the resulting seismic design criteria required for new constructions and renovations ensure that the risk of structural damage or collapse is greatly reduced or eliminated. While earthquake ground shaking would be felt at the Project site, seismic design criteria, as prescribed in the CBC, would reduce the risk of building collapse and injury to visitors. Although conformance to CBC recommendations do not guarantee that significant structural damage would not occur onsite in the event of a maximum magnitude earthquake, it can be expected that a well-designed and constructed modern structure would not directly or indirectly expose people or structures to potentially substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking. Further, there is no evidence that development of the Project would increase the frequency or effects of seismic activity in the area. Therefore, this impact would be less than significant.

a.iii) **Less-than-Significant Impact.** Liquefaction occurs when saturated sandy or gravelly materials become liquified due to ground shaking during an earthquake. Liquefaction causes a material to lose bearing strength and can result in differential settlement and consolidation, which, in turn, can damage structures and utilities. The Project site is in an area designated under the SHMA as susceptible to liquefaction and is considered an area of moderate to low liquefaction potential (Contra Costa County, 2005). Zoning under the SHMA does not necessarily mean that liquefiable materials are confirmed to underlie the site; SHMA zoning identifies areas, based on regional geologic conditions, where there is a potential for liquefaction to occur and soil testing is required to confirm the presence or absence of problematic soils on a particular site. Given that the Project site is underlain by hard clay-silt mixtures, the potential for liquefaction to occur at the Project site would likely be low. Nevertheless, the design-level geotechnical investigation that would be conducted prior to the final design of the proposed facilities as required by the City would include subsurface exploration and testing to determine the presence of soil materials that could liquefy during an earthquake. If site investigation indicates a potential for liquefaction, geotechnical recommendations would be provided to remedy those conditions to avoid damage to the facilities during an earthquake. Such remedies include ground improvement techniques (e.g., dynamic compaction jet grouting, lime stabilization) or placement of foundation piers that extend into competent materials below liquefiable material. Geotechnical methods to reduce hazards from liquefaction are standard, industry-accepted solutions used throughout the San Francisco Bay Area to remedy liquefiable soil conditions. Therefore, this impact would be less than significant.

ai.v) **No Impact**. The Project site topography has very low relief and no sloping land; thus, there is no potential for landslides and/or slope failures and thus, there is no impact.

b) **Less-than-Significant Impact.** As discussed above, the soil covering the Project site is mapped as Capay clay (0-3 percent slopes). The vertical profile of this soils type is primarily clay with silt mixtures. Short-term erosion of surface soils or temporary soil stockpiles is possible during the construction phase of the Project when soil is disturbed and exposed to precipitation. However, under the Construction General Permit (CGP) (discussed in detail in the Hydrology and Water Quality section), the permit applicant or their contractor(s) would implement stormwater controls [(aka Best Management Practices (BMPs)], as set forth in a detailed Stormwater Pollution Prevention Plan (SWPPP). SWPPPs must describe the specific erosion control and stormwater quality BMPs needed to reduce erosion and minimize pollutants in stormwater runoff with adequate details of their placement and proper installation. Under the CGP, there is a low potential that the Project site would be impacted by a substantial degree of erosion. Post-construction, the Project site would be occupied by equipment associated with centralized atmospheric air separation processing and surrounding pavement, which would not leave soil exposed to erosion. The potential for temporary and long-term erosion to occur at the site is low; therefore, this impact is less than significant.

c) **Less-than-Significant Impact.** The proposed Project is an expansion of the previously developed facility on the approximately 31-acre parcel that is situated on competent alluvial materials consisting of clay and silt mixtures. These materials are not considered unstable (i.e., susceptible to settlement, subsidence, or soils collapse), although, as discussed in Topic a.iii, this area of Pittsburg is zoned under the SHMA as susceptible to liquefaction. While that may be the case, it does not necessarily mean that the Project site is underlain by liquefiable material. Given that the previously developed facilities adjacent to the Project site have performed well without experiencing settlement or ground failure, it is very likely that the proposed development would remain stable following construction. Nevertheless, a design-level geotechnical investigation, which is required by Contra Costa County, would be conducted to determine final foundation design for the air separation plant equipment and pavements. The investigation would conduct subsurface soil exploration and testing and if problematic soils are identified, geotechnical corrective measures would be recommended. These measures are standard, industry-accepted solutions used throughout the San Francisco Bay Area to remedy problematic soil conditions. As discussed in Topic a.iv, the Project site is relatively flat so the potential for lateral spreading or on- or offsite landsliding are not considered a potential Project impact. Therefore, this is a less-than-significant impact.

d) **Less-than-Significant Impact.** The Project site is covered with soils characterized as Capay clay (0-3 percent). These soils could be expansive, exhibiting shrink-swell characteristics.[7] The cyclic shrink-swell nature of expansive soils can, over time, damage foundations and pavement surfaces. However, the design-level geotechnical investigation completed prior to construction, which is required by Contra Costa County and necessary to design equipment foundations, would test near-surface soil samples and if expansive soils are identified recommendations would be provided to address remedy areas with problematic soils. Therefore, the Project would result in a less-than-significant impact.

e) **No Impact.** An Onsite Wastewater Treatment System (OWTS) is not proposed as part of the Linde, Inc. facility expansion. Domestic sewage and wastewater is currently conveyed from the existing facility to the municipal sewage system.

f) **Less-than-Significant Impact.** The Project site is underlain by Quaternary alluvial fan deposits consisting of clay, silt, sand, and gravel. These comparatively young unconsolidated to semi-consolidated deposits do not typically contain intact fossilized remains. A review of the University of California Museum of Paleontology (UCMP) localities database revealed that paleontological resources in Contra Costa County were recovered in the older (e.g., Tertiary-age) formations and not within the much younger

[7] Expansive soils shrink when desiccated and swell or expand with the addition of moisture.

Quaternary and Pleistocene alluvium (UCMP, 2023). Geologically young and unconsolidated alluvium deposits rarely, if ever, contain fossilized remains. Given the young age and the nature of the alluvial materials, there is a low probability that the shallow construction excavations necessary during Project construction would encounter fossilized remains. In addition, this site is currently a flat-lying vacant lot and does not contain a unique geologic feature. Therefore, this impact is less than significant.

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GREENHOUSE GAS EMISSIONS

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
8. GREENHOUSE GAS EMISSIONS — Would the proposed project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Introduction

Greenhouse gas emissions (GHG) emissions would be generated during Project operations from the consumption of electricity and petroleum fuels. GHG emissions would also be temporarily generated by onsite equipment and vehicles required for construction of the Project.

Setting

Global Climate Change

Climate is defined as the average statistics of weather, which include temperature, precipitation, and seasonal patterns such as storms and wind, in a particular region. Global climate change refers to the long term and irrevocable shift in these weather-related patterns. Using ice cores and geological records, baseline temperature and carbon dioxide (CO_2) data extends back to previous ice ages thousands of years ago. Over the last 10,000 years, the rate of temperature change has typically been incremental, with warming and cooling occurring over the course of thousands of years. However, scientists have observed an unprecedented increase in the rate of warming over the past 150 years, roughly coinciding with the global industrial revolution, which has resulted in substantial increases in GHG emissions into the atmosphere. The anticipated impacts of climate change in California range from water shortages to inundation from sea level rise. Transportation systems contribute to climate change primarily through the emissions of certain GHGs (CO_2, methane (CH_4), and nitrous oxide (N_2O)) from nonrenewable energy (primarily gasoline and diesel fuels) used to operate passenger, commercial and transit vehicles. Land use changes contribute to climate change through construction and operational use of electricity and natural gas, and waste production.

The Intergovernmental Panel on Climate Change (IPCC) has reached consensus that human-caused emissions of GHGs in excess of natural ambient concentrations are responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth's climate, known as global climate change or global warming. It is "extremely likely" that more than half of the observed increases in global average surface temperature from 1951 to 2010 were caused by the anthropogenic increase in GHG concentrations and other anthropogenic forces together. The IPCC predicts that the global mean surface temperature increase by the end of the 21st century (2081– 2100) relative to 1986–2005, could range from 0.5 to 8.7 degrees

Fahrenheit. Additionally, the IPCC projects that global mean sea level rise will continue during the 21st century, very likely at a faster rate than observed from 1971 to 2010. For the period 2081–2100 relative to 1986–2005, the rise will likely range from 10 to 32 inches (IPCC, 2013).

Greenhouse Gases

Gases that trap heat in the atmosphere are referred to as GHGs because they capture heat radiated from the sun as it is reflected back into the atmosphere, much like a greenhouse does. The accumulation of GHGs has been implicated as the driving force for global climate change. The six primary GHGs are:

- carbon dioxide (CO_2), emitted when solid waste, fossil fuels (oil, natural gas, and coal), and wood and wood products are burned;
- methane (CH_4), produced through the anaerobic decomposition of waste in landfills, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, incomplete fossil fuel combustion, and water and wastewater treatment;
- nitrous oxide (N_2O), typically generated as a result of soil cultivation practices, particularly the use of commercial and organic fertilizers, fossil fuel combustion, nitric acid production, and biomass burning;
- hydrofluorocarbons (HFCs), primarily used as refrigerants;
- perfluorocarbons (PFCs), originally introduced as alternatives to ozone depleting substances and typically emitted as by-products of industrial and manufacturing processes; and
- sulfur hexafluoride (SF_6), primarily used in electrical transmission and distribution.

Although there are other contributors to global climate change, these six GHGs are identified by the U.S. Environmental Protection Agency (U.S. EPA) as threatening the public health and welfare of current and future generations. GHGs have varying potential to trap heat in the atmosphere, known as global warming potential (GWP), and atmospheric lifetimes. GWP reflects how long GHGs remain in the atmosphere, on average, and how intensely they absorb energy. Gases with a higher GWP absorb more energy per pound than gases with a lower GWP, and thus contribute more to warming Earth. For example, one ton of CH_4 has the same contribution to the greenhouse effect as approximately 28 tons of CO_2; hence, CH_4 has a 100-year GWP of 28 while CO_2 has a GWP of 1. GWP ranges from 1 (for CO_2) to 23,500 (for SF_6).

In emissions inventories, GHG emissions are typically reported in terms metric tons of CO_2 equivalents (CO_2e). CO_2e are calculated as the product of the mass emitted of a given GHG and its specific GWP. While CH_4 and N_2O have much higher GWP than CO_2, CO_2 is emitted in such vastly higher quantities that it accounts for the majority of GHG emissions in CO_2e.

Regional GHG Emissions Estimates

In 2019, the United States emitted about 6,577 million metric tons of CO_2. Emissions increased from 2018 to 2019 by 1.7 percent. GHG emissions in 2019 (after accounting for sequestration from the land sector) were 12.9 percent below 2005 levels. This decrease was largely driven by a decrease in emissions from fossil fuel combustion, which was a result of decreased total energy use and reflects a continued shift from coal to less carbon intensive natural gas and renewables (U.S. EPA, 2021).

In 2020, California emitted approximately 369.2 million metric tons of CO_2e. This represents approximately six percent of total U.S. emissions. This large number is due primarily to the sheer size of California compared to other states. California's gross emissions of GHG decreased by 5.6 percent from 461.9 million metric tons of CO_2e in 2000 to 369.2 million metric tons in 2020, with a maximum of 486.2 million metric tons in 2004 (CARB, 2022).

In 2016, overall community wide GHG emissions for City of Pittsburg was 428,563 metric tons of CO_2e. The largest proportion of GHG emissions in the City in 2016 came from natural gas usage in residential and non-residential buildings, followed by on-road transportation, off-road vehicles and equipment, electricity usage in residential and non-residential buildings, and solid waste (landfilling). Minor sources also included electricity transmission and distribution losses, water and wastewater collection and treatment, BART passenger rail, and marine transit. The total GHG emissions for 2016 indicates a decrease of 42,652 metric tons of CO_2e or an approximately nine percent decrease from the adjusted 2005 community wide GHG emissions of 471,215 metric tons of CO_2e (City of Pittsburg, 2019).

Executive Order S-3-05

Governor Schwarzenegger established Executive Order S-3-05 in 2005, in recognition of California's vulnerability to the effects of climate change. Executive Order S-3-05 set forth a series of target dates by which statewide emissions of GHG would be progressively reduced, as follows:

- By 2010, reduce GHG emissions to 2000 levels;
- By 2020, reduce GHG emissions to 1990 levels; and
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

The executive order directed the Secretary of the California EPA (CalEPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. The Secretary will also submit biannual reports to the governor and California Legislature describing the progress made toward the emissions targets, the impacts of global climate change on California's resources, and mitigation and adaptation plans to combat these impacts. To comply with the executive order, the secretary of CalEPA created the California Climate Action Team, made up of members from various state agencies and commissions. The team released its first report in March 2006. The report proposed to achieve the targets by building on the voluntary actions of California businesses, local governments, and communities and through state incentive and regulatory programs.

Assembly Bill 32 (California Global Warming Solutions Act of 2006)

California passed the California Global Warming Solutions Act of 2006 (AB 32; California Health and Safety Code Division 25.5, Sections 38500 - 38599). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and establishes a cap on statewide GHG emissions. AB 32 required that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction is accomplished by enforcing a statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs CARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then CARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires CARB to adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrived at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state reduces GHG emissions enough to meet the cap. AB 32 also includes guidance on instituting emissions reductions in an economically efficient manner, along with conditions to ensure that businesses and consumers are not unfairly affected by the reductions. Using these criteria to reduce statewide GHG emissions to 1990 levels by 2020 would represent an approximate 25 to 30 percent reduction in current emissions levels. However, CARB has discretionary authority to seek greater reductions in more significant and growing GHG sectors, such as transportation, as compared to other sectors that are not anticipated to significantly increase emissions. Under AB 32, CARB must adopt regulations to achieve reductions in GHG to meet the 1990 emissions cap by 2020.

Climate Change Scoping Plan

AB 32 required CARB to develop a Scoping Plan that describes the approach California will take to reduce GHG to achieve the goal of reducing emissions to 1990 levels by 2020. The Scoping Plan was first approved by CARB in 2008 and must be updated every five years. The initial AB 32 Scoping Plan contains the main strategies California will use to reduce the GHG that cause climate change. The initial Scoping Plan has a range of GHG reduction actions which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 program implementation fee regulation to fund the program.

The 2013 Scoping Plan Update builds upon the initial Scoping Plan with new strategies and recommendations. The 2013 Update identifies opportunities to leverage existing and new funds to further drive GHG emission reductions through strategic planning and targeted low carbon investments. The 2013 Update defines CARB climate change priorities for the next five years and sets the groundwork to reach California's long-term climate goals set forth in Executive Orders S-3-05 and B-16-2012. The 2013 Update highlights California progress toward meeting the near-term 2020 GHG emission reduction goals defined in the initial Scoping Plan. In the 2013 Update, nine key focus areas were identified (energy, transportation, agriculture, water, waste management, and natural and working lands), along with short-lived climate pollutants, green buildings, and the cap-and-trade program. On May 22, 2014, the First Update to the Climate Change Scoping Plan was approved by the Board, along with the finalized environmental documents. On November 30, 2017, the Second Update to the Climate Change Scoping Plan was approved by the CARB.

CARB's *2022 Scoping Plan* was adopted in December 2022. The three previous scoping plans focused on specific GHG reduction targets for the state's industrial, energy, and transportation sectors — first to meet 1990 levels by 2020, then to meet the more aggressive target of 40 percent below 1990 levels by 2030. The *2022 Scoping Plan* addresses recent legislation and direction from Governor Newsom, extending and expanding upon earlier scoping plans with a target of reducing anthropogenic emissions to 85 percent below 1990 levels by 2045.

Low Carbon Fuel Standard

Under the Climate Change Scoping Plan, the CARB identified the LCFS as one of the nine discrete early action measures to reduce California's GHG emissions. The LCFS is designed to decrease the carbon intensity of California's transportation fuel pool and provide an increasing range of low-carbon and renewable alternatives, which reduce petroleum dependency and achieve air quality benefits.

In 2018, the CARB approved amendments to the regulation, which included strengthening and smoothing the carbon intensity benchmarks through 2030 in-line with California's 2030 GHG emission reduction target enacted through SB 32, adding new crediting opportunities to promote zero emission vehicle adoption, alternative jet fuel, carbon capture and sequestration, and advanced technologies to achieve deep decarbonization in the transportation sector.

Executive Order No. B-30-15

On April 29, 2015, Executive Order No. B-30-15 was issued to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. Executive Order No. B-30-15 sets a new, interim, 2030 reduction goal intended to provide a smooth transition to the existing ultimate 2050 reduction goal set by Executive Order No. S-3-05 (signed by Governor Schwarzenegger in June 2005). It is designed so State agencies do not fall behind the pace of reductions necessary to reach the existing 2050 reduction goal. Executive Order No. B-30-15 orders "All State agencies with jurisdiction over sources of GHG emissions shall implement measures, pursuant to statutory authority, to achieve reductions of GHG emissions to meet the 2030 and 2050 targets." The Executive Order also states that "CARB shall update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent."

Senate Bill 32

On September 8, 2016, the governor signed Senate Bill 32 (SB 32) into law, extending AB 32 by requiring the State to further reduce GHGs to 40 percent below 1990 levels by 2030 (the other provisions of AB 32 remain unchanged). On December 14, 2017, CARB adopted the 2017 Scoping Plan, which provides a framework for achieving the 2030 target. The 2017 Scoping Plan relies on the continuation and expansion of existing policies and regulations, such as the Cap-and-Trade Program, as well as implementation of recently adopted policies and policies, such as SB 350 and SB 1383. The 2017 Scoping Plan also puts an increased emphasis on innovation, adoption of existing technology, and strategic investment to support its strategies. As with the 2013 Scoping Plan Update, the 2017 Scoping Plan does not provide project-level thresholds for land use development.

Senate Bill 100

SB 100 mandates that the CPUC, CEC, and CARB plan for 100 percent of total retail sales of electricity in California to come from eligible renewable energy resources and zero carbon resources by December 31, 2045. SB 100 also updates the state's RPS to include the following interim targets:

- 44% of retail sales procured from eligible renewable sources by December 31, 2024.
- 52% of retail sales procured from eligible renewable sources by December 31, 2027.
- 60% of retail sales procured from eligible renewable sources by December 31, 2030.

Under SB 100, the CPUC, CEC, and CARB shall use programs under existing laws to achieve 100 percent clean electricity. The statute requires these agencies to issue a joint policy report on SB 100 every four years. The first of these reports was issued in 2021.

Executive Order B-55-18

On September 10, 2018, the governor issued Executive Order B-55-18, which established a new statewide goal of achieving carbon neutrality by 2045 and maintaining net negative emissions thereafter. This goal is in addition to the existing statewide GHG reduction targets established by SB 375, SB 32, SB 1383, and SB 100.

Significance Criteria

Because the issue of global climate change is inherently a cumulative issue, the contribution of Project-related GHG emissions to climate change is addressed as a cumulative impact. Some counties, cities, and air districts have developed guidance and thresholds for determining the significance of GHG emissions that occur within their jurisdiction. The City of Pittsburg is the CEQA lead agency for the Project and is, therefore, responsible for determining whether GHG emissions with the Project would have a cumulatively considerable contribution to climate change. The City of Pittsburg has not adopted GHG emissions significance thresholds, thus defers to BAAQMD's adopted thresholds.

BAAQMD recently updated their *CEQA Air Quality Guidelines* (BAAQMD, 2023). BAAQMD's thresholds of significance consist of three options for project-level impacts:

a. Land use project design elements that must be included in a project,

b. Consistency with a local GHG reduction strategy, and

c. A stationary source threshold of 10,000 metric tons of CO_2e per year.

BAAQMD's *CEQA Air Quality Guidelines*, *Appendix B: CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans*, state the following in reference to the newly adopted land use project design elements significance thresholds:

> *"The Air District has developed these thresholds of significance based on typical residential and commercial land use projects and typical long-term communitywide planning documents such as general plans and similar long-range development plans. As such, these thresholds may not be appropriate for other types of projects that do not fit into the mold of a typical residential or commercial project or general plan update. Lead agencies should keep this point in mind when evaluating other types of projects. A lead agency does not necessarily need to use a threshold of significance if the analysis and justifications that were used to develop the threshold do not reflect the particular circumstances of the project under review. Accordingly, a lead agency should not use these thresholds if it is faced with a unique or unusual project for which the analyses supporting the thresholds as described in this report do not squarely apply. In such cases, the lead agency should develop an alternative approach that would be more appropriate for the particular project before it, considering all of the facts and circumstances of the project on a case-by-case basis."*

The proposed Project is not a typical land residential or commercial land use project, as it is an industrial facility expansion that would not construct new buildings or vehicle parking. Thus, the land use project design elements significance threshold does not apply. Furthermore, the City of Pittsburg has not adopted a local GHG reduction strategy or climate action plan, thus, that significance threshold is not applicable either.

The proposed Project is largely a stationary source since it is an industrial facility and the majority of GHG emissions generated are through electricity usage. This analysis uses the 10,000 metric tons of CO_2e per year significance threshold to assess potential GHG emissions impacts from the Project. Project emissions less than 10,000 metric tons of CO_2e per year would indicate that the proposed Project's contribution to global climate change would be less than cumulatively considerable.

Discussion

a) **Less-than-Significant Impact.** The Project would generate GHG emissions during temporary construction activities and long-term operations.

Temporary Construction Activities

Construction activities are a temporary and one-time direct source of GHG emissions. Construction activities would generate GHG emissions through the operation of heavy off-road equipment, trucks, and worker automobiles. Construction activities would occur intermittently for approximately 13 months. Construction of the Project would utilize fuel efficient equipment and trucks consistent with state regulations and would be consistent with state regulations intended to reduce the inefficient, wasteful, or unnecessary consumption of energy, such as anti-idling and emissions regulations.

Construction emissions were estimated using CalEEMod (CAPCOA, 2022). Detailed modeling assumptions and results are provided in **Appendix A**. Project construction was estimated to generate approximately 661 metric tons of CO_2e during Project construction. BAAQMD has not adopted GHG emissions thresholds of significance for construction.

As noted in BAAQMD's *CEQA Air Quality Guidelines*, *Appendix B,* GHG emissions from construction represent a very small portion of a project's lifetime GHG emissions and operational emissions represent the vast majority of project GHG emissions. Construction emissions are a one-time release and would not result in a significant impact on the environment. Therefore, Project construction would result in a less-than-significant impact.

Long-Term Operations

Long-term operational GHG emissions would be generated primarily by electricity consumption and mobile sources (i.e., employee vehicles and heavy trucks). GHG emissions would also be generated through water/wastewater conveyance. Operational GHG emissions were estimated using CalEEMod (CAPCOA, 2022) and are displayed below in **Table 8** below. Detailed modeling assumptions and results are provided in **Appendix A.**

TABLE 8 ESTIMATED PROJECT ANNUAL OPERATIONAL GHG EMISSIONS

Year	Mobile Emissions	Electricity Usage [2]	Water Usage	Total Emissions [1]
2025	2,117	1,168	108	3,393
2026	2,076	3,115	108	5,299
2027	2,028	2,505	108	4,641
2028	1,976	3,894	108	5,978
2029	1,922	4,283	108	6,313
2030	1,867	4,790	108	6,765
Maximum				**6,765**
Threshold of Significance				**10,000**
Potentially Significant?				No

NOTES:

1 Metric tons of CO_2e

2 Assumes 98 lbs of CO_2e per MWh, per PG&E's 2021 Power Content Label, https://www.pge.com/pge_global/common/pdfs/your-account/your-bill/understand-your-bill/bill-inserts/2022/1022-Power-Content-Label.pdf, Accessed July 13, 2023.

SOURCE: CAPCOA, 2022.

As shown above in **Table 8**, the Project would generate a maximum of approximately 6,765 metric tons of CO_2e in year 2030, below the significance threshold of 10,000 metric tons of CO_2e per year. GHG Emissions would likely be lower than the emissions stated in **Table 8**, given that electricity emissions are estimated using PG&E's 2021 GHG intensity for electricity (the most recent available). It would be expected that PG&E's GHG intensity for electricity continues to decrease over time and is estimated to be net zero by 2040 (five years ahead of the 2045 state mandate through SB100) (PG&E, 2022). Therefore, the Project would result in a less-than-significant impact.

It is important to note that the proposed Project would also be consistent with BAAQMD's land use project design elements. Since the Project does not include buildings the two design measures for buildings do not apply, nevertheless, the Project would not include natural gas equipment or any other aspects of the Project and it would not result in wasteful, inefficient, or unnecessary energy usage (see Energy section of this Initial Study). Furthermore, the Project would have a less-than-significant VMT impact (see Transportation section of this Initial Study) and would not construct buildings or parking (the Project would remove seven parking spaces for on the parcel for accessibility to the Project site), thus the off-street electric vehicle requirements would not apply. Therefore, the Project would comply with BAAQMD's land use project design elements as well and would result in a less-than-significant impact.

b) **Less-than-Significant Impact.** The City of Pittsburg has not adopted a local GHG reduction strategy or climate action Plan. State plans for reducing GHG emissions include CARB's 2017 Scoping Plan for achieving the 2030 GHG emissions reduction target outlined in SB 32 (40 percent below 1990 levels by 2030) and CARB's 2022 Scoping Plan for achieving carbon neutrality by 2045 and 85 percent below 1990 levels. CARB's scoping plans rely on the continuation and expansion of existing policies and regulations, such as the Cap-and-Trade Program, as well as implementation of recently adopted policies, such as SB 100, which requires electricity providers to increase procurement from eligible renewable energy resources to 60 percent by 2030 and 100 percent by 2045.

The electricity delivered by PG&E and consumed by the Project would be subject to SB 100 and the state's RPS, which requires increasing renewable energy to 60 percent by 2030 and 100 percent by 2045. PG&E delivers some of the nation's cleanest electricity to customers, with 93 percent from GHG-free resources in 2021. The associated emissions rate is nearly 90 percent cleaner than the latest national average among energy providers (PG&E, 2022).

Petroleum fuels consumed by the Project would decrease over time in accordance with Executive Order N-79-20, which requires all new passenger vehicles sold in California to be zero-emission by 2035, and all other fleets to transition to zero-emission as fully possible by 2045.

As noted in impact a), the Project would be below BAAQMD's adopted GHG significance thresholds. The Project would not conflict with applicable plans, policies or regulations adopted for the purpose of reducing GHG emissions. Therefore, the Project would result in a less-than-significant impact.

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HAZARDS AND HAZARDOUS MATERIALS

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
9. HAZARDS AND HAZARDOUS MATERIALS — Would the proposed project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

Introduction

The Project site is currently vacant, surrounded by developed industrial land-uses. Site improvements include a railroad spur and pipelines associated with the adjacent Linde, Inc. plant facility located to the south. The Pittsburg-Antioch Highway and a closed landfill, which has been redeveloped as solar power generation farm, is located to the north. The Linde Gas & Equipment (LG&E) facility is east of the Project site and a commercial laundry facility, operated by Cintas Corporation, is to the west.

A Phase 1 Environmental Site Assessment (Phase 1) was prepared for the Project site in March 2023 and identified three data gaps that were considered recognized environmental conditions (REC) associated with the Project site (CEC, 2023). First, the Phase 1 identified a data gap regarding insufficient information on a Linde facility ditch cleanup that was conducted in 1984. Second, the Phase 1 found insufficient information detailing the removal of former underground storage tanks from the Linde Inc. plant and LG&E facilities to the south and east. Third, the Phase 1 noted the potential for offsite contaminants from the Caltrans surface water/highway runoff that flows into a drainage ditch that traverses the Project site. Stormwater discharge from the Caltrans lift station flows into the ditch and could convey contaminated water and sediment (i.e., residual metals and petroleum) across the Project site. Therefore, the Phase 1 identified this as a potential source for onsite deposition of contaminants. The Phase 1 did not identify RECs originating from the Project site based on the absence of available evidence (i.e., staining, stressed vegetation, odors, or a reported release) confirming an onsite release of contaminants.

The California Department of Toxic Substances Control (DTSC) defines a hazardous material as: "a substance or combination of substances that, because of its quantity, concentration or physical, chemical, or infectious characteristics, may either: 1) cause, or significantly contribute to an increase in mortality or an increase in serious, irreversible, or incapacitating illness; or 2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported, disposed of, or otherwise managed." Hazardous materials are generally classified based on the presence of one or more of the following four properties: toxicity, ignitability, corrosivity and reactivity.

Liquid nitrogen is unreactive, nonflammable, noncombustible and nontoxic. Nitrogen gas is colorless, odorless, noncombustible, nontoxic and makes up the major portion of the atmosphere. It may cause asphyxiation by displacement of air and under prolonged exposure to fire or heat, containers may rupture violently. Oxygen gas is colorless, odorless, tasteless, and it will support life. Oxygen is noncombustible but will actively support the burning of combustible materials. Some materials that will not burn in air will burn in oxygen and materials that burn in air will burn more vigorously in oxygen (NOAA, 2023). Pure oxygen is nonflammable. Under prolonged exposure to fire or intense heat, the containers may rupture violently. Argon is nonflammable, noncombustible, nontoxic, inert, and non-reactive. Argon is classified as a simple asphyxiant where inhalation in excessive concentrations can result in dizziness, nausea, vomiting, loss of consciousness, and death (resulting from errors in judgment that prevent self-rescue) (NOAA, 2023).

Regulations governing the use, management, handling, transportation and disposal of hazardous materials and waste are administered by several federal, state and local governmental agencies. Federal regulations governing hazardous materials and waste include the Resource Conservation, and Recovery Act of 1976 (RCRA); the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA); and the Superfund Amendments and Re-authorization Act of 1986 (SARA). The California DTSC maintains a hazardous waste and substances site database, also known as the "Cortese List." Federal statute 49 CFR regulates shipment of hazardous materials by ground, air and vessel. The Department of Transportation (DOT), which includes the Federal Motor Carrier Safety Administration (FMCSA) is responsible for enforcing 49 CFR. In California, other agencies involved with the regulation and enforcement involving hazardous materials use, storage and shipment include the DTSC, California Division of Occupational Safety and Health (DOSH or Cal/OSHA), California Department of Motor Vehicles (DMV), and the California Highway Patrol (CHP).

Discussion

a) **Less-than-Significant Impact.** During construction of the Project, the use of hazardous substances would be limited to fuels, lubricants, solvents, etc. and subject to standard handling and storage requirements. The Project would be required to comply with all federal and state regulations regarding the routine transport, use, storage, or disposal of hazardous materials, as necessary. Once operating, the proposed expanded facility would separate nitrogen, oxygen, and argon and cool them to cryogenic temperatures, converting them from gas to a liquid phase. These elements are stable and not toxic in the gas and liquid phase. The gas separation process does not require combustion, chemical reactions, or additional ingredients. The end-products of the separation process are transported offsite in a stable state by specially designed trucks that operate in accordance with Federal and State hazardous materials transportation regulations set forth by the FMCSA and the federal and state DOT. An accidental release during transportation of these gases would be rare, but if one did occur, it would be managed locally and contained at the site by emergency response teams operating in accordance with federal and state regulations. Products of the air-separation process do not pose a significant hazard to the public or environment through routine transport and therefore, this impact is less than significant.

b) **Less-than-Significant Impact.** Refer to topic (a)**,** above. The gas products produced from the air separation processes are stable elements in the gas and liquid phase and are the primary constituents of air. Accidental release of one or more of the elements into the atmosphere would be rare considering the modern industry standards for these types of industrial processes and the regulations addressing production, storage, and transportation of hazardous and non-hazardous gas and liquids. An unintended release of any of the three products produced at the Project site would be managed and contained at the facility in accordance with prescribed federal and state regulations addressing hazardous materials management. Products of the air-separation process do not pose a significant hazard to the public or environment if released and therefore, this impact is less than significant.

c) **Less-than-Significant Impact.** The closest school to the Project site is Martin Luther King Junior High School, located just over ¼ mile to the west. The second closest is Los Medanas College located about one-half a mile to the south-southeast. Pittsburg High School is located 0.9 miles to west-southwest. These schools are ¼ mile or more from the Project site and would not likely be impacted if, in the rare occurrence, a release of either gas phase or liquid phase nitrogen, oxygen, or argon occurs at the proposed gas separation facilities. Given the distance from the Project site, the low probability of an accidental release, and the consideration that if an accidental release did occur, it would be managed and contained by onsite emergency crews, this impact is considered less than significant.

d) **Less than Significant Impact.** The Phase 1 revealed that the Project site address (2000 Loveridge Road) is listed on multiple regulatory databases under other corporation names including Union Carbide, Praxair, Linde, or LOGEX, Inc (CEC, 2020). The databases included the California Department Toxic Substance Control's (DTSC) Envirostor database and the California State Water Resources Control Board's (SWRCB) Geotracker database. The Phase 1 stated that no information was available to ascertain with any certainty where identified spills and releases occurred in relation to the Project site and the larger south adjoining Linde Inc. facility. Regardless of this uncertainty, the Phase 1 provided the following details:

- Samples were obtained in 1983 from a ditch, which was apparently located near the Project site, but the location of the ditch is uncertain based on the available records. Laboratory analysis of these samples indicated high concentrations of zinc, chromium, copper, lead, and nickel. The ditch was excavated in 1984, with over 60 cubic yards of soil transported to a local landfill for disposal.

- At least two leaking underground storage tanks were apparently removed from the Linde Inc. plant facility in the late 1980s. Review of the records also indicate that three groundwater monitoring wells were installed, but levels of benzene, toluene, ethylbenzene, and xylenes were not detectable by the analytical laboratory. Soils were also removed from tank system area during the tank removal operations.

- While some information in the various databases is contradictory, approximately nine petroleum underground storage tanks have been present at the 2000 Loveridge Road facility. The dates of tank installation span from 1959 to the 1980s, with the contents listed as either waste oil, diesel, or gasoline. Tank capacities range from 500 gallons to 20,000 gallons.

Based on the information provided above and review of the Phase 1, it appears that the soils excavated from the ditch in 1984 were transported offsite to a landfill and thus would not impact the Project site. There is no evidence that the two removed petroleum underground storage tanks were located on the Project site and, based on the information presented, they were most likely located at the developed Linde plant facility to the south. Furthermore, it is very likely that, despite the contradictory information in the databases, the nine petroleum underground storage tanks are located on the developed Linde Inc. properties to the east and south of the Project site. There is no evidence presented in the Phase 1 indicating that the vacant portion of the parcel that is considered the Project site has been involved in the storage, accidental release, or production of hazardous waste or materials and that it could create a significant hazard to the public or environment. Therefore, this impact is less than significant.

e) **No Impact.** The Project site is not located within an Airport Land Use Compatibility Plan and is not within two miles of a public airport. The nearest airport is the Contra Costa County Airport located approximately 11 miles west of the Project site. Therefore, there is no impact.

f) **Less-than-Significant Impact.** The Project would not interfere with emergency response plans or evacuation plans. The Project is an industrial in-fill and expansion project occurring on a vacant lot adjacent to a developed industrial facility. The Project involves the installation of industrial gas separation equipment and tanks with associated paved areas but no new ingress and egress to public roads. The Project would not impede or require diversion of rescue vehicles or evacuation traffic in the event of a life-threatening emergency. Therefore, this impact is less than significant.

g) **Less-than-Significant Impact.** The Project site is mapped in an unzoned Local Responsibility Area (LRA), and is not located in a State Responsibility Area (SRA) or a Very High Fire Hazard Severity Zone (VHFHSZ). The closest VHFHSZ is approximately 6 miles southwest of the Project site near Clayton (CalFire, 2007). There are no elements of the Project that would exacerbate regional wildland fire risk. Therefore, this impact is less than significant.

References

California Department of Forestry and Fire Protection (CalFire, 2007). *Draft Fire Hazard Severity Zones in LRA* – Contra Costa County. Fire and Resource Assessment Program (FRAP), Version Reviewed: September 17, 2007.

Civil and Environmental Consultants, Inc. (CEC, 2023). *Phase I Environmental Site Assessment Report, North Portion of Linde Inc. Property, 2000 Loveridge Road, Pittsburg, CA 94965*. CEC Project 330-812. Prepared for Linde Inc. July 2023.

National Oceanic and Atmospheric Administration (NOAA). Cameo Chemicals. Database of Hazardous Materials. Online Chemical Information https://cameochemicals.noaa.gov/ Accessed July-August 2023.

HYDROLOGY AND WATER QUALITY

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
10. HYDROLOGY AND WATER QUALITY – Would the proposed project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	☐	☐	☒	☐
i) result in substantial erosion of siltation on- or off- site;	☐	☐	☒	☐
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
iv) impede or redirect flood flows?	☐	☐	☒	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

Setting

The Project site is vacant vegetated land at an elevation of approximately 40 ± feet above mean sea level (msl) and is relatively flat with a slight slope to the northeast (CEC, 2023). Annual rainfall is approximately 16.5 inches in the area. The majority of the Project site is located within a 100-yr flood hazard area (CEC, 2023, Appendix D).

The Project site is located within the Kirker Creek watershed, and the nearest major surface water body is Kirker Creek, located approximately 0.1 miles north of the Project site across the Pittsburg-Antioch Highway. Kirker Creek watershed drains much of the City of Pittsburg and a portion of the City of Antioch with a drainage area of approximately 17.4 square miles. Rainfall is the primary source of water for Kirker Creek. The creek flows during the rainy season (November through April) and dries out in the summer months, although irrigation and urban runoff produce some dry season flow that can keep portions of the channel wet year-round (Contra Costa County, 2003).

Originating in the foothills of Mt. Diablo, Kirker Creek flows north 9.4 miles through parks, ranches, and developed areas in Pittsburg, and empties into Sacramento-San Joaquin Delta. The channel of Kirker Creek has been substantially altered in the Project vicinity due to urbanization and the lower reaches of the creek and its tributaries have been culverted, concreted, and redirected in reaches to accommodate residential and industrial uses. While most of the channel is open, culverts divert the creek underground at road crossings and along a few segments near the Pittsburg-Antioch Highway. Near the Project site, the channel turns 90-degrees just north of the Pittsburg-Antioch Highway, flows eastward adjacent to the highway, and then flows into the New York Slough through two channels, the Dowest Slough and the Los Medanos Wasteway (Contra Costa County, 2004).

Stormwater at the Project site is conveyed in a drainage ditch that runs from the southwest corner of the existing Linde facility and flows north along the western boundary of the Project site adjacent to the Linde rail spur, then crosses the Linde rail spur via a buried culvert and flows eastward across the Project site before exiting the property to the northeast and ultimately flowing into Kirker Creek (Figure 2). The primary source of stormwater within the onsite drainage ditch is from a lift station owned by the California Department of Transportation (CalTrans) that discharges stormwater collected along a portion of State Highway 4 into the ditch at the southwest property boundary (CEC, 2023). The Project site also receives stormwater discharge from the adjoining Linde facility to the east via a concrete headwall located in the southern corner of the Project site, from which stormwater traverses the site and flows offsite via the drainage channel to the northeast.

Discussion

a) **Less-than-Significant Impact.** During construction activities, stormwater runoff from disturbed soils is a common source of pollutants (mainly sediment) to receiving waters. Earthwork activities can render soils and sediments more susceptible to erosion from stormwater runoff and result in the migration of soil and sediment in stormwater runoff to storm drains and downgradient water bodies. Excessive and improperly managed grading or vegetation removal can lead to increased erosion of exposed earth and sedimentation of watercourses during rainy periods. In addition, construction would likely involve the use of various materials typically associated with construction activities such as paint, solvents, oil and grease, petroleum hydrocarbons, concrete and associated concrete wash-out areas. If improperly handled, these materials could mobilize and transport pollutants offsite by stormwater runoff (nonpoint source pollution) and degrade receiving water quality.

The Clean Water Act effectively prohibits discharges of stormwater from construction projects unless the discharge complies with National Pollutant Discharge Elimination System (NPDES) regulations. Because the Project exceeds one acre in size, construction activities would be required to obtain coverage under the State Construction General

Permit (CGP)[8]. Under the requirements of the CGP, the permit applicant or their contractor(s) would implement stormwater controls, referred to as construction Best Management Practices (BMPs), as set forth in a detailed Stormwater Pollution Prevention Plan (SWPPP). SWPPPs are a required component of the CGP and must be prepared by a California-certified Qualified SWPPP Developer (QSD) and implemented by a California-certified Qualified SWPPP Practitioner (QSP). SWPPPs must describe the specific erosion control and stormwater quality BMPs needed to minimize pollutants in stormwater runoff and detail their placement and proper installation. The BMPs are designed to prevent pollutants from contacting stormwater and to keep all products of erosion (i.e., sediment) and stormwater pollutants from migrating offsite into storm drains and receiving waters. Typical BMPs implemented at construction sites include placement of sediment barriers around storm drains, the use of fiber rolls or gravel barriers to detain sediment from disturbed areas, and temporary or permanent stockpile covers to prevent rainfall from contacting the stockpiled material. In addition to erosion control BMPs, SWPPPs also include BMPs for preventing the discharge of other pollutants such as paint, solvents, concrete, and petroleum products to downstream waters. BMPs for these pollutants also include routine leak inspections of equipment, maintaining labelling and inspecting integrity of containers, and ensuring that construction materials are disposed of in accordance with manufacture's recommended disposal practices and applicable hazardous waste regulations.

Under the provisions of the CGP, the QSD is responsible for assessing the risk level of a site based on both sediment transport and receiving water risk and developing and implementing the SWPPP. Projects can be characterized as Risk Level 1, 2, or 3, and these risk levels determine the minimum BMPs and monitoring that must be implemented during construction. Under the direction of the QSD, the QSP is required to conduct routine inspections of all BMPs, conduct surface water sampling, when necessary, and report site conditions to the State Water Resources Control Board (SWRCB) using the Stormwater Multi-Application Reporting and Tracking System (SMARTS). Compliance with the CGP is required by law and has proven effective in protecting water quality at construction sites.

Following the completion of construction, any development on the parcel would be subject to compliance with the Contra Costa Clean Water Program (CCCWP). The CCCWP encompasses Contra Costa County, 19 incorporated cities (including the City of Pittsburg), and Contra Costa County Flood Control and Water Conservation District (CCCFCWCD). The CCCWP monitors compliance with the NPDES program and the Storm Water Utility areas for most of Contra Costa County, including the City of Pittsburg. The CCCWP develops and implements specific programs to meet NPDES requirements and consists of a comprehensive plan to reduce the discharge of pollutants to the "maximum extent practicable." The Contra Costa Permittees are currently subject to NPDES Permit No. CAS612008 issued by Order No. R2-2015-0049 on November 19,

[8] NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities – Order no. WQ 2022-0057-DWQ which becomes effective on September 1, 2023 and which supersedes Order 2009-0009-DWQ as amended by Order 2010-0014-DWQ and 2012-0006-DWQ.

2015, and amended by Order No. R2-2019-0004 on February 13, 2019, to discharge stormwater runoff from storm drains and watercourses within their jurisdictions. Provision "C.3" of the NPDES permit governs discharges from the municipal storm drain systems in the cities of Contra Costa County. The "C.3" requirements are separate from, and in addition to, requirements for erosion and sediment control and pollution prevention measures. The provisions require that developers detain or infiltrate runoff so that peak flows and flow durations match pre-project flows and require that project plans implement water treatment measures to treat runoff prior to discharge.

Operation of the proposed Project would be subject to coverage under the Industrial Stormwater General Permit. The Industrial Stormwater General Permit (General Permit Order 2014-0057-DWQ), also referred to as the General Industrial Permit, regulates discharges associated with industrial activities. The General Industrial Permit requires the implementation of management measures that will achieve the performance standard of best available technology economically achievable (BAT) and best conventional pollutant control technology (BCT). The General Industrial Permit also requires the development of a SWPPP and a monitoring plan. Through the SWPPP, the permit regulates stormwater discharges associated with equipment fueling, maintenance, and waste disposal (as applicable to the proposed Project). In addition, the SWPPP identifies sources of pollutants and describes the means to manage the sources to reduce stormwater pollution. The General Industrial Permit requires that an annual report be submitted each July 1. To obtain the General Industrial Permit, a complete NOI package to discharge stormwater, and a Notice of Termination must be filed with the San Francisco Bay Regional Water Quality Control Board (RWQCB), which has jurisdiction over the project.

Required compliance with the prescriptions set forth by the CGP, SWPPP, and the post-construction requirements of the CCCWP and the General Industrial Permit, including implementation of design features and pollutant source controls, would prevent the discharge of pollutants to surface waters or groundwater and minimize or eliminate the potential for degradation of surface water or groundwater quality that could result from implementation of the proposed Project. Water quality impacts related to violation of water quality standards or degradation of water quality would be less than significant.

b) **Less-Than-Significant Impact.** The Project site is located within the Pittsburg Plain Groundwater Basin and groundwater in the Project site vicinity is documented to occur at depths between 20 and 25 feet below ground surface (bgs) (CEC 2023, Appendix E). The Project would be served by the existing potable water service provided by the City and no groundwater wells would be drilled on-site. Impervious surfaces associated with implementation of the Project would not impair groundwater recharge because soils that underlie the Project site are comprised of clay (CEC, 2023), which have a very low infiltration rate—particularly when thoroughly wetted—and thus offer marginal groundwater recharge qualities. Project construction of utilities and foundations would involve subsurface excavation. It is unlikely that groundwater would be encountered during utility trenching or foundation excavation activities due to the local groundwater depth. However, if shallow groundwater were encountered during construction excavations, temporary dewatering would be necessary to create a dry work area. Dewatering would be localized to the excavation site or trench and would likely only require the removal of low volumes of shallow groundwater from excavation trenches which would be infiltrated on-site into underlying soils. Because of its short-term nature, construction dewatering would not adversely affect local groundwater levels or available supply. Therefore, the Project would not interfere with groundwater recharge or substantially decrease groundwater supplies and impacts related to groundwater depletion and interference with groundwater recharge would be less than significant.

c) **Less-Than-Significant Impact.** Implementation of the proposed Project would not involve the direct alteration of a stream or river and would not substantially alter the existing drainage pattern of the Project site; stormwater runoff during construction and following completion of the Project would continue to either be retained onsite and/or flow downgradient and be conveyed offsite via the drainage ditches to Kirker Creek. Regulations governing development and stormwater recognize the relationship between land-use changes and runoff and typically prescribe requirements (such as use of retaining stormwater onsite) relating to stormwater management that minimizes concentration of site runoff and increased offsite discharges. Regulations also typically protect water quality and require treating stormwater runoff via physical or biological systems (such as vegetated bioswales) and minimizing disturbance areas.

As described under a), above, during construction of the proposed Project, the applicant would be required to comply with the NPDES regulations and apply for coverage under the CGP because ground disturbance at the Project site would exceed one acre. Under the CGP, the Project applicant would be required to prepare a SWPPP. The SWPPP must include site-specific erosion and sedimentation control practices and would limit the amount of runoff that may be directed offsite during construction. Following the completion of construction (post-construction), the Project would be subject to compliance with the CCCWP and the General Industrial Permit. As described under a), above, the proposed Project would be subject to the "C.3" provisions that require that developers detain or infiltrate runoff so that peak flows and flow durations match pre-project flows and require that project plans implement water treatment measures to treat runoff prior to discharge. The SWPPP associated with the General Industrial Permit requires the identification of sources of pollutants and describes the means to manage the sources to reduce stormwater pollution.

The Project site is located within a 100-year[9] flood hazard zone designated by the Federal Emergency Management Agency (FEMA). The majority of the Project site is mapped as FEMA flood zone AO, meaning the site is within an area with a 1% or greater chance of shallow flooding each year, usually in the form of sheet flow, with an average depth of one foot. Due to the design of the Project involving the majority of components being raised tanks on concrete piers or support structures (Figure 4), shallow flooding due to

[9] Areas subject to inundation by the 1-percent-annual-chance flood event

inundation of the Project site would not alter drainage patterns in a manner that would impede or redirect flood flows. Further, the proposed Project would not increase the base flood levels in the surrounding area because of its relatively minor elevated volume relative to the surrounding developed industrial area where flooding would be occurring; therefore, the Project would not redirect floodwaters offsite.

Compliance with the requirements of the CGP, SWPPP, and the implementation of associated BMPs would prevent erosion and siltation on- and off-site during construction. Adherence to the CCCWP and General Industrial Permit provisions and requirements would ensure post-construction stormwater discharges would not be increased and that pollutants would not be transported offsite in a manner that would degrade the water quality of receiving waters. Therefore, impacts related to erosion, siltation, and flooding due to altered drainage patterns or the addition of impervious surfaces following completion of construction or due to exceeding stormwater conveyance infrastructure or creating additional sources of polluted runoff would be less than significant. Additionally, the Project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows; the impact would be less than significant.

d) **Less-Than-Significant Impact.** A seiche is caused by oscillation of the surface of a large enclosed or semi-enclosed body of water due to an earthquake or large wind event. The Project site is not located near a large enclosed or semi-enclosed body of water. The Project site is not in a tsunami hazard inundation zone (CGS, 2021). As described under c), above, the Project site is located within a 100-year flood hazard zone designated by FEMA. Compliance with the Contra Costa County Floodplain Management Ordinance (Ordinance No. 2000-33) requirements for development within the 100-year flood hazard zone would require that the Project be constructed in a manner that minimizes flood damage, prevents the diversion of floodwaters that may increase flood hazards in other areas, and in flood zone AO, be constructed with adequate drainage paths around structures to guide floodwaters around and away from proposed structures. Compliance with floodplain building requirements would ensure that inundation of the Project during existing and future flooding is minimized and/or avoided. Therefore, impacts resulting from the release of pollutants due to inundation of the Project due to flood waters would be less than significant.

e) **Less-Than-Significant Impact.** The RWQCB’s Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan; RWQCB, 2019) is the principal water quality planning document for the region. The Basin Plan water quality objectives are designed to preserve and enhance water quality and protect the beneficial uses of all regional terrestrial surface water bodies (e.g., creeks, rivers, streams, and lakes) and groundwaters within the RWQCB’s jurisdictional area. As discussed above under a), c), and d), the proposed Project would not cause any significant impact related to water quality degradation or groundwater impacts. The Basin Plan water quality objectives are designed to preserve and enhance water quality and protect the beneficial uses[10] of all regional terrestrial surface water bodies (e.g., creeks, rivers, streams, and lakes) and groundwaters within the RWQCB's jurisdictional area. The Project would comply with the requirements of the CGP under the NPDES Permit program, including implementation of BMPs and other requirements of a SWPPP, as well as the stormwater management requirements under CCCWP Provision "C.3", all of which are designed to ensure stormwater discharges associated with construction and long-term occupancy of the Project site comply with the Basin Plan water quality standards. The Project would not require substantial groundwater withdrawals or reduce groundwater recharge, as discussed under b), and therefore would not conflict with or obstruct implementation of a sustainable groundwater management plan. Impacts relating to conflict or obstruction of implementing a water quality control plan or sustainable groundwater management plan would be less than significant.

References

Civil and Environmental Consultants, Inc. (CEC), 2023. *Phase I Environmental Site Assessment Report, North Portion of Linde Inc. Property, 2000 Loveridge Road, Pittsburg, CA 94965*. CEC Project 330-812. Prepared for Linde Inc. July 2023.

California Department of Conservation, California Geological Survey (CGS), 2021. *Tsunami Hazard Area Map*, Contra Costa County; produced by the California Geological Survey and the California Governor's Office of Emergency Services. Accessed online on August 10, 2023 at: https://www.conservation.ca.gov/cgs/tsunami/maps/contra-costa

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Contra Costa County, 2004. *Draft Aquatic Resources Inventory, Classification, and Function for East Contra Costa County*. Contra Costa County Community Development Department.

Regional Water Quality Control Board San Francisco Bay Region (RWQCB), 2019. *San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan). Incorporating all amendments approved by the Office of Administrative Law as of November 5, 2019.* Accessed online on August 10, 2023 at: https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/planningtmdls/basinplan/web/docs/ADA_compliant/BP_all_chapters.pdf

[10] Aquatic resources provide many different benefits. Beneficial uses are those resources, services, and/or qualities of aquatic systems that are to be maintained and are the ultimate goals for protecting and achieving high water quality.

LAND USE AND LAND USE PLANNING

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
11. LAND USE AND LAND USE PLANNING — Would the proposed project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

Discussion

a) **No Impact.** The Project site is currently undeveloped and is in the northern area of the parcel east of the Union Pacific Railroad line that extends south into the parcel. Union Pacific Railroad and Pittsburg-Antioch Highway are to the north and the existing facility is to the south and east. The Project would not divide an established community. Therefore, the Project would result in no impact.

b) **Less-than-Significant Impact.** The Project site is zoned General Industrial (IG) and is designated Industrial in the City's 2020 General Plan. The Project requires a City Variance Application for the approval of the 137-foot distillation tower to be consistent with land use regulations. Once the City Variance is provided for the distillation tower, the Project would not conflict with any land use plans, policies, or regulations. Therefore, the Project would result in a less-than-significant impact.

MINERAL RESOURCES

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
12. MINERAL RESOURCES — Would the proposed project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

Discussion

a, b) **No Impact.** The California Department of Conservation Mines Online tool does not identify any documented mines on the Project site (California Department of Conservation, 2023). According to the General Plan, there are currently no significant mineral deposits or active mining operations in the City (City of Pittsburg, 2010). Thus, the Project site does not contain a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. Therefore, the Project would result in no impact.

References

Department of Conservation, *Division of Mine Reclamation, Mines Online.* http://maps.conservation.ca.gov/mol/index.html. Accessed June 20, 2023.

City of Pittsburg. 2010. *City of Pittsburg 2020 General Plan, Chapter 9 Resource Conservation*

NOISE

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
13. NOISE — Would the proposed project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Introduction

Sound is mechanical energy transmitted by pressure waves through a medium such as air. Noise is defined as unwanted sound. Sound pressure level has become the most common descriptor used to characterize the "loudness" of an ambient sound level. Sound pressure level is measured in decibels (dB), with zero dB corresponding roughly to the threshold of human hearing, and 120 to 140 dB corresponding to the threshold of pain. Decibels are measured using different scales, and it has been found that A-weighting of sound levels best reflects the human ear's reduced sensitivity to low frequencies, and correlates well with human perceptions of the annoying aspects of noise. The A-weighted decibel scale (dBA) is cited in most noise criteria. All references to decibels (dB) in this report will be A-weighted unless noted otherwise.

Several time-averaged scales represent noise environments and consequences of human activities. The most commonly used noise descriptors are the equivalent A–weighted sound level over a given time period (Leq)[11]; average day–night 24-hour average sound level (Ldn)[12] with a nighttime increase of 10 dB to account for sensitivity to noise during the nighttime; and community noise equivalent level (CNEL)[13], also a 24-hour average that includes both an evening and a nighttime sensitivity weighting. **Table 9** identifies decibel levels for common sounds heard in the environment. With regard to increases in A-weighted noise level, the following relationships occur (Caltrans, 1998a):

- Under controlled conditions in an acoustics laboratory, the trained healthy human ear is able to discern changes in sound levels of 1 dB;
- Outside of such controlled conditions, the trained ear can detect changes of 2 dB in normal environmental noise;
- It is widely accepted that the average healthy ear, however, can barely perceive noise levels changes of 3 dB;
- A change in level of 5 dB is a readily perceptible increase in noise level; and
- A 10-dB change is recognized as twice as loud as the original source.

TABLE 9 TYPICAL NOISE LEVELS

Noise Level (dB)	Outdoor Activity	Indoor Activity
90+	Gas lawn mower at 3 feet, jet flyover at 1,000 feet	Rock Band
80-90	Diesel truck at 50 feet	Loud television at 3 feet
70-80	Gas lawn mower at 100 feet, noisy urban area	Garbage disposal at 3 feet, vacuum cleaner at 10 feet
60-70	Commercial area	
40-60	Quiet urban daytime, traffic at 300 feet	Large business office, dishwasher next room
20-40	Quiet rural, suburban nighttime	Concert hall (background), library, bedroom at night
10-20		Broadcast / recording studio
0	Lowest threshold of human hearing	Lowest threshold of human hearing

SOURCE: (modified from Caltrans Technical Noise Supplement, 1998)

Noise Attenuation

Stationary point sources of noise, including construction equipment, attenuate (lessen) at a rate of 6 to 7.5 dB per doubling of distance from the source, depending on ground absorption. Soft sites attenuate at 7.5 dB per doubling because they have an absorptive ground surface such as soft dirt, grass, or scattered bushes and trees. Hard sites have reflective surfaces (e.g., parking lots or smooth bodies of water) and therefore have less attenuation (6.0 dB per doubling). A street or

11 The Equivalent Sound Level (Leq) is a single value of a constant sound level for the same measurement period duration, which has sound energy equal to the time–varying sound energy in the measurement period.
12 Ldn is the day–night average sound level that is equal to the 24-hour A-weighted equivalent sound level with a 10-decibel penalty applied to night between 10:00 p.m. and 7:00 a.m.
13 CNEL is the average A-weighted noise level during a 24-hour day, obtained by addition of 5 decibels in the evening from 7:00 to 10:00 p.m., and an addition of a 10–decibel penalty in the night between 10:00 p.m. and 7:00 a.m.

roadway with moving vehicles (known as a "line" source), would typically attenuate at a lower rate, approximately 3 to 4.5 dB each time the distance doubles from the source, that also depends on ground absorption (Caltrans, 1998b). Physical barriers located between a noise source and the noise receptor, such as berms or sound walls, would increase the attenuation that occurs by distance alone.

Regulatory Context

Federal

There are no federal noise standards that regulate noise issues related to the Project.

State

Title 24, Chapter 12, Section 1207 mandates that interior noise levels attributable to exterior sources shall not exceed 45 dB, Ldn or CNEL in any habitable room. This performance standards protects persons within new buildings which house people, including hotels, motels, dormitories, apartment houses and dwellings other than single-family dwellings.

Local

City of Pittsburg

City of Pittsburg 2020 General Plan

The City of Pittsburg 2020 General Plan Noise Element (Chapter 12) outlines a comprehensive program of achieving acceptable noise levels throughout Pittsburg and ensures compliance with State noise requirements. The Noise Element indicates that the significant sources of noise in Pittsburg include major transportation corridors, such as State Route (SR) 4 and arterial roadways. The following policy is relevant to this Project.

> **Policy 12-P-9:** Limit generation of loud noises on construction sites adjacent to existing development to normal business hours between 8:00 a.m. and 5:00 p.m.

City of Pittsburg Municipal Code

The City of Pittsburg has established noise performance standards and permissible hours for construction activities in the Municipal Code. These provisions are summarized below:

> Per §9.44(J), the operation of pile drivers, hammers, and similar equipment is prohibited between the hours of 10:00 p.m. and 7:00 a.m. In addition to these specific requirements set forth in Chapter 9.44 of the Municipal Code, development projects are required to meet the more restrictive standards stated above in Policy 12-P-9, which limits all loud noise-generating construction activities to between 8:00 a.m. and 5:00 p.m.

> Per §18.82.040(B), no construction event or activity occurring on any site adjoining a lot located in an R, residential PD or GQ district shall generate loud noises in excess of 65 decibels measured at the property line, except between the hours of 8:00 a.m. and 5:00 p.m.

Sensitive Receptors

Some land uses are considered more sensitive to ambient noise levels than others due to the amount of noise exposure, in terms of both duration and insulation from noise, and the types of activities typically involved. Residences, hospitals, schools, and nursing homes are generally more sensitive to noise than commercial and industrial land uses. The City of Pittsburg 2020 General Plan Noise Element (Chapter 12) identifies noise-sensitive uses as residences, schools, churches, and hospitals. This analysis considers noise-sensitive uses as residences, schools, churches, and hospitals, consistent with the definitions of noise-sensitive uses in the City of Pittsburg General Plan. Delta Oaks Presbyterian Church is roughly 600 feet southwest of the Project site. The Edgewater Apartments are roughly 800 feet southwest of the Project site. The nearest school, Martin Luther King Jr. Junior High School, is approximately 1,300 feet west of the Project site.

Methodology and Existing Noise Environment

To quantify existing ambient noise levels, this noise study included 8 short-term (10-minute) noise measurements in and around the Project site. A Larson Davis SoundTrack LxT Sound Level Meter calibrated before and after the measurements was used for the short-term measurements. **Table 10** summarizes the locations and results of the noise measurements. **Figure 5** shows the noise measurement locations on a map.

TABLE 10 EXISTING PROJECT VICINITY NOISE LEVELS

Location	Time Period	Noise Levels (dB)	Noise Sources
Site 1: Approximately 70 feet east of tower.	Friday May 26, 2023 10:23 a.m. to 10:33 a.m.	5-minute Leq's: 90, 90	Linde staff stated that this area was the loudest part of the facility. Noise from facility operations was constant at 90 dB.
Site 2: Southern area of existing facility, nearby loading docks.	Friday May 26, 2023 10:34 a.m. to 10:44 a.m.	5-minute Leq's: 78, 77	Noise from facility operations was constant at 77 dB. Truck passby at 15 feet was 75 dB.
Site 3: Western fence line of existing facility.	Friday May 26, 2023 10:45 a.m. to 10:55 a.m.	5-minute Leq's: 78, 78	Noise from facility operations was constant at 78 dB.
Site 4: Northern area of existing facility, approximately 125 feet north of tower.	Friday May 26, 2023 10:56 a.m. to 11:06 a.m.	5-minute Leq's: 81, 81	Noise from facility operations was constant at 81 dB.
Site 5: Approximately 40 feet north of existing cooling towers.	Friday May 26, 2023 11:08 a.m. to 11:18 a.m.	5-minute Leq's: 71, 71	Noise from cooling towers was constant at 71 dB.
Site 6: Approximately 50 feet north of the Delta Oaks Presbyterian Church.	Friday May 26, 2023 11:27 a.m. to 11:37 a.m.	5-minute Leq's: 62, 63	Cars in parking lot 63 dB. Distant noise from constant facility operations was constant at 61 dB.
Site 7: Northeastern property line of the Edgewater Apartment Complex closest to the existing facility.	Friday May 26, 2023 11:40 a.m. to 11:50 a.m.	5-minute Leq's: 60, 60	An emergency car siren on California Avenue was 65 dB. Distant noise from constant facility operations was constant at 60 dB.
Site 8: Southeastern property line of the Edgewater Apartment Complex.	Friday May 26, 2023 11:51 a.m. to 12:01 p.m.	5-minute Leq's: 61, 58	No perceptible noise being generated from existing facility due to intervening buildings. Main source of noise was the Starbucks drive-thru lane to the south that was up to 61 dB.

SOURCE: RCH GROUP, 2023

Source: RCH Group; Google Earth Pro, 2023

Figure 5
Noise Measurement Locations

RCHGROUP
planning & environmental consulting

Discussion

a) ***Construction Noise Impacts***

Less-than-Significant Impact. Construction would result in a temporary increase in ambient noise levels in the vicinity of the Project. Construction activities would require the use of numerous pieces of noise-generating equipment, such as excavating machinery (e.g., excavators, loaders, etc.) and other construction equipment (e.g., dozers, compactors, trucks, etc.). The noise levels generated by construction equipment would vary greatly depending upon factors such as the type and specific model of the equipment, the operation being performed, the condition of the equipment, and the prevailing wind direction. Construction activities would occur approximately 800 feet away from the Edgewater Apartments. The maximum noise levels at 50 feet and 800 feet for various types of construction equipment that could be used during Project construction are provided in **Table 11**.

TABLE 11 TYPICAL CONSTRUCTION EQUIPMENT NOISE LEVELS

Construction Equipment	Noise Level (dB, L_{max}[1] at 50 feet)	Noise Level (dB, L_{max} at 800[2] feet)
Air Compressor	78	48
Backhoe	78	48
Excavator	81	51
Dozer	82	52
Front End Loader	79	49
Compactor	83	53
Water Truck	80	50
Crane	81	51
Manlift	75	45
Pneumatic Tools	85	55
Dump Truck	76	46
Front End Loader	79	49

NOTES:
L_{max} = maximum sound level
1. An attenuation rate of 7.5 per doubling distance was used to convert the FHWA noise levels at 50-feet to the noise levels at 800-feet.

SOURCE: Federal Highway Administration (FHWA) Roadway Construction Noise Model User's Guide, 2006.

Construction would only occur within the allowable hours outlined in General Plan Policy 12-P-9 and of the allowable hours outlined in City of Pittsburg Municipal Code §9.44(J), described above. Project construction would not exceed standards established in the local general plan or noise ordinance. Therefore, construction impacts would result in a less-than-significant impact.

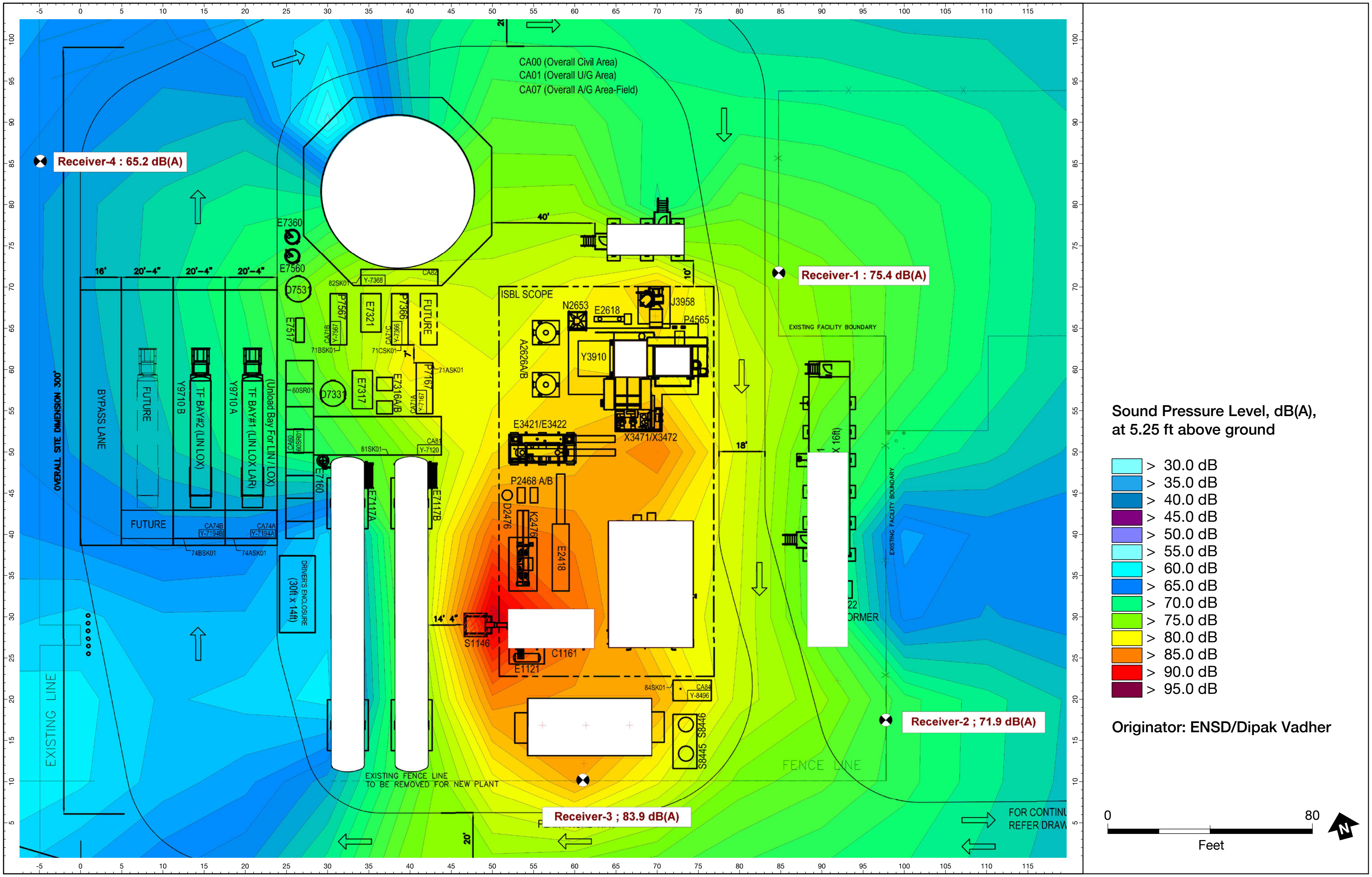
Operational Noise Impacts

As described in the Noise Background (above), no construction event or activity occurring on any site adjoining a lot located in an R, residential PD or GQ district shall generate loud noises in excess of 65 decibels measured at the property line, except between the hours of 8:00 a.m. and 5:00 p.m. Although the Project does not adjoin a lot designated as R, PD or GQ, this analysis considers Project operational noise exceeding 65 dB at the Edgewater Apartments (the nearest property with a Residential zoning designation) between the hours of 5:00 p.m. and 8:00 a.m. as a potentially significant impact of the Project.

The Project would include the operation of a second centralized atmospheric air separation plant like the existing facility that would be in constant operation. The Project would not require new buildings and the Project elements would include prefabricated equipment and enclosures for switch gears. Cadna/A was used to model the noise generation from the proposed Project elements (Linde, 2023) (see **Figure 6**). **Figure 6** shows the predicted constant noise level contours from operations of proposed equipment at the Project site. The noise modeling indicates that the noise levels at the nearest single-point receiver directly west of the Project site would be 65.2 dB. As shown in **Table 10,** Site 7, noise from the existing facility reaching the nearest Edgewater Apartments property line is 60 dB, Leq. A constant noise level of 65.2 dB directly west of the Project site would be significantly reduced by intervening commercial and industrial buildings blocking the line of site to the nearest Edgewater Apartments property line. Due to this, it is unlikely that the increase in noise levels from the new Project facilities would be perceptible at the nearest Edgewater Apartments property line. Furthermore, cumulative noise from both the Project and the existing air separation facility would be below 65 dB at the nearest property with a Residential zoning designation. Therefore, Project operations would result in a less-than-significant impact.

b) **No Impact.** The nearest off-site structure is approximately 200 feet west of the Project site boundary. Vibrational effects from construction activities are typically only a concern within 25 feet of existing structures (Caltrans, 2002). Construction would utilize typical construction equipment that would not pose potential vibration impacts. Therefore, the Project would result in no impact.

c) **No Impact.** The Project site is not within the vicinity of a private airstrip or an airport land use plan, or within two miles of a public use airport. The nearest airport is Buchanan Field Airport (the nearest runway of which is approximately 10 miles southwest of the Project site). Therefore, the Project would result in no impact.



Source: The Linde Group, 2023

Figure 6
Noise Contour Map

RCHGROUP
planning & environmental consulting

References

All images courtesy of Google Earth, 2023.

California Department of Transportation (Caltrans). 1998a. *Technical Noise Supplement*.

California Department of Transportation (Caltrans). 1998b. *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects.*

California Department of Transportation (Caltrans). 2002. *Transportation Related Earthborne Vibrations*.

City of Pittsburg. 2010. *City of Pittsburg 2020 General Plan, Chapter 12 Noise Element.*

Federal Highway Administration (FHWA). 2006. *Roadway Construction Noise Model User's Guide.*

The Linde Group. 2023. *Cadna/A: Noise Level Contour Map for the Proposed Project Site*

POPULATION AND HOUSING

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
14. POPULATION AND HOUSING — Would the proposed project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing people or housing units, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion

a) **No Impact.** Development of the Project would not directly or indirectly induce population growth in the area. The Project would not involve the construction of new housing. Therefore, the Project would result in no impact.

b) **No Impact.** The Project would not displace existing people or housing units. Therefore, the Project would result in no impact.

PUBLIC SERVICES

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
15. PUBLIC SERVICES — Would the proposed project:				
a) Result in substantial adverse physical impacts associated with the provision of, or the need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
i) Fire protection?	☐	☐	☒	☐
ii) Police protection?	☐	☐	☒	☐
iii) Schools?	☐	☐	☐	☒
iv) Parks?	☐	☐	☐	☒
v) Other public facilities?	☐	☐	☐	☒

Introduction

Fire Protection

The Contra Costa County Fire Protection District (CCCFPD) provides fire protection services to the City (City of Pittsburg, 2010). The CCCFPD operates out of 29 fire stations located throughout its jurisdictional area. The nearest fire station is CCCFPD Station 85, located approximately 3,700 feet south of the Project site on Loveridge Road.

Police Protection

The City of Pittsburg Police Department provides law enforcement services to the City. The Pittsburg Police Department is located approximately 1.45 miles west of the Project site.

Discussion

a.i) **Less-than-Significant Impact.** Once developed, the Project site would be served by the CCCFPD. The existing facility is already served by the CCCFPD and the Project is not expected to result in an increase in calls for fire and emergency protection services that would warrant changes to fire protection service ratios and/or response times. Though the products created are not poisonous and are nontoxic and nonflammable, the cryogenic temperatures and extreme purity of the gases create their own hazards. Linde has met with the CCCFPD for training and tours of the existing facility and would continue to do so for the Project. Therefore, the Project would result in a less-than-significant impact.

a.ii) **Less-than-Significant Impact.** Once developed, the Project site would be served by the Pittsburg Police Department. The existing facility is already served by the CCCFPD and the Project is not expected to result in an increase in calls for police protection or result in any changes in crime that would warrant changes to police protection service ratios and/or response times. Therefore, the Project would result in a less-than-significant impact.

a.iii-v) **No Impact.** The Project would not warrant a need for new schools, parks, or other public facilities. Therefore, the Project would result in no impact.

References

City of Pittsburg. 2010. *City of Pittsburg 2020 General Plan, Chapter 11 Public Facilities.*

RECREATION

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
16. RECREATION — Would the proposed project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated?	☐	☐	☐	☒
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

Discussion

a, b) **No Impact.** There are no recreational facilities within the vicinity of the Project site. The Project would not substantially increase the use of existing recreational facilities such that physical deterioration of existing facilities would occur or be accelerated. The Project would not warrant new or expanded recreational facilities. Therefore, the Project would result in no impact.

TRANSPORTATION

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
17. TRANSPORTATION — Would the proposed project:				
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☒	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
d) Result in inadequate emergency access?	☐	☐	☒	☐

Introduction

Senate Bill 743

Senate Bill 743 (SB 743; Steinberg, 2013) governs the application of new State CEQA *Guidelines* for addressing transportation impacts based on Vehicle Miles Traveled (VMT). It was codified in Public Resources Code §21099, required changes to the guidelines implementing CEQA (State CEQA *Guidelines*) (Cal. Code Regs., Title 14, Div. 6, Ch. 3, § 15000 et seq.) regarding the analysis of transportation impacts. The Governor's Office of Planning and Research (OPR) has proposed, and the California Natural Resources Agency (Agency) has certified and adopted, changes to the State CEQA *Guidelines* that identify VMT as the most appropriate metric to evaluate a project's transportation impacts. With the Agency's certification and adoption of the changes to the State CEQA *Guidelines*, automobile delay, as measured by "level of service" and other similar metrics, generally no longer constitutes a significant environmental effect under CEQA. (Pub. Resources Code, § 21099, subd. (b)(3).)"

The OPR's *Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR, 2018) provides general direction regarding the methods to be employed and significance criteria to evaluate VMT impacts, absent policies adopted by local agencies.

Project Trip Generation

Project trucks (starting at six to seven per day and ramping up to 16 to 20 per day) would utilize the existing entry/exit on Loveridge Road. Nearly all truck traffic is expected to head south on Loveridge Road to Highway 4. An additional four employee round trips would be generated by the Project. Therefore, Project operations would generate a maximum of 24 round trips per day (48 one-way trips per day).

Discussion

a) **Less-than-Significant Impact.** The Project would result in vehicle trips (i.e., worker vehicles, vendor trucks, and haul trucks) during construction. Vehicles associated with construction of the Project would use regional and local roadways to access the site, Highway 4 and Loveridge Road. During operations, vehicles would access the Project site via the existing entry/exit on Loveridge Road. In relation to the existing conditions, the Project would not cause substantial changes to the pedestrian or bicycle traffic in the area and would not significantly impact or require changes to the design of any existing or planned bicycle or pedestrian facilities. Project construction and operations would not conflict with any program, plan, or policy addressing the circulation system in the City. Therefore, the Project would result in a less-than-significant impact.

b) **Less-than-Significant Impact.** Vehicle miles traveled (VMT) refers to the amount and distance of vehicle travel attributable to a project. VMT generally represents the number of vehicle trips generated by a project multiplied by the average trip length for those trips. For CEQA transportation impact assessment, VMT is calculated using the origin-destination VMT method, which accounts for the full distance of vehicle trips to and from the Project site.

The OPR's *Technical Advisory on Evaluating Transportation Impacts in CEQA* provides general direction regarding the methods to be employed and significance criteria to evaluate VMT impacts, absent policies adopted by local agencies. The directive addresses several aspects of VMT impact analysis, and is organized as follows:

- **Screening Criteria:** Screening criteria are intended to quickly identify when a project should be expected to cause a less-than-significant VMT impact without conducting a detailed study.
- **Significance Thresholds:** Significance thresholds define what constitutes an acceptable level of VMT and what could be considered a significant level of VMT requiring mitigation.
- **Analysis Methodology:** These are the potential procedures and tools for producing VMT forecasts to use in the VMT impact assessment.
- **Mitigation:** Projects that are found to have a significant VMT impact based on the County's significance thresholds are required to implement mitigation measures to reduce impacts to a less-than-significant level (or to the extent feasible).

Screening Criteria

Screening criteria can be used to quickly identify whether sufficient evidence exists to presume a project would have a less-than-significant VMT impact without conducting a detailed study. However, each project should be evaluated against the evidence supporting that screening criteria to determine if it applies. Projects meeting at least one of the criteria below can be presumed to have a less than significant VMT impact, absent substantial evidence that the project will lead to a significant impact.

The extent to which the Project qualifies under each criterion is noted below.

- **Regional Truck Traffic:** The OPR directive specially focuses on the need to evaluate residential and employment-based travel, either from the standpoint of home-based trips or through evaluation of commute trips associated with employment centers. Consistent with Section 15064.3 of the State CEQA *Guidelines*, impacts from regional truck traffic are not included in the VMT estimates, but are considered from an operational standpoint as they relate to safety.

- **Small Projects:** Defined as a project that generates 110 or fewer average daily vehicle trips.

- **Affordable Housing:** Defined as a project consisting of deed-restricted affordable housing.

- **Local-Serving Non-Residential Development:** The directive notes that local serving retail uses can reduce travel by offering customers more choices in closer proximity. Local serving retail uses of 50,000 square feet or less can be presumed to have a less-than-significant impact.

- **Projects in Low VMT-Generating Area:** Defined as a residential or office project that is in a VMT efficient area based on an available VMT Estimation Tool. The project must be consistent in size and land use type (i.e., density, mix of uses, transit accessibility) as the surrounding built environment.

- **Proximity to High Quality Transit**: The directive notes that employment and residential development located within a half mile of a high-quality transit corridor can be presumed to have a less-than-significant impact.

Impact Conclusion

The extent to which the Project's VMT impacts can be presumed to be less than significant has been determined based on review of the OPR's screening criteria and general guidance. The OPR's Small Project criteria is applicable to the Project. The Project is estimated to generate up to 48 one-way trips per day, which is below the OPR's threshold of 110 average daily trips. As the 110 average daily trips threshold would not be exceeded, the Project's VMT impacts can be presumed to be less than significant. Therefore, the Project would result in a less-than-significant impact.

c) **Less-than-Significant Impact.** The Project would not involve any new hazardous design or feature. The Project would not include any sharp curves or dangerous intersection. The Project site design would conform to City design standards and is not expected to create any significant impacts to pedestrians, bicyclists, or traffic operations. Therefore, the Project would result in a less-than-significant impact.

d) **Less-than-Significant Impact.** The Project would not substantially increase hazards to vehicle safety due to increased traffic, which could result in inadequate emergency access. All lane widths within the Project would meet the minimum width that can accommodate an emergency vehicle. In addition, the addition of traffic from Project traffic would not result in any significant changes to emergency vehicle response times in the area. Therefore, the Project would result in a less-than-significant impact.

References

California Governor's Office of Planning and Research (OPR). 2018. *Technical Advisory on Evaluating Transportation Impacts in CEQA*, April 2018.

TRIBAL CULTURAL RESOURCES

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
18. TRIBAL CULTURAL RESOURCES — Would the proposed project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☐	☒	☐
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American Tribe.	☐	☐	☒	☐

Introduction

Tribal Cultural Resources (TCR's) is a newly defined class of resources under Assembly Bill 52 (AB 52). TCR's include sites, features, places, cultural landscapes, and sacred places or objects that have cultural value or significance to a Tribe. To qualify as a TCR, the resource must either: 1) be listed on, or be eligible for, listing on the California Register of Historical Resources (CRHR) or other local historic register; or 2) constitute a resource that the lead agency, at its discretion and supported by substantial evidence, determines should be treated as a TCR (PRC §21074). AB 52 also states that tribal representatives are considered experts appropriate for providing substantial evidence regarding the locations, types, and significance of TCRs within their traditional and cultural affiliated geographic area, and therefore, the identification and analysis of TCRs should involve government-to-government tribal consultation between the CEQA lead agency and interested tribal groups and/or tribal persons. (PRC §21080.3.1(a)).

The City of Pittsburg notified the following tribes on August 9, 2023 in accordance with AB 52 requirements:

1. The Ohlone Indian Tribe
2. Nashville Enterprise Miwok-Maidu-Nishinam Tribe
3. Confederated Villages of Lisjan Nation
4. Chicken Ranch Rancheria of Me-Wuk Indians
5. Guidiville Indian Rancheria
6. Indian Canyon Mutsun Band of Costanoan
7. Muwekma Ohlone Indian Tribe of the SF Bay Area
8. North Valley Yokuts Tribe
9. Amah Mutsun Tribal Band of Mission San Juan Bautista
10. Wilton Rancheria
11. Tule River Indian Tribe

As of October 6, 2023, no tribes have requested formal consultation nor have tribes had specific concerns regarding TCRs that could be present on the Project site and no TCRs were discovered during the cultural and paleontological resources investigation of the Project site (SAS, 2023).

Discussion

a) **Less-than-Significant Impact.** No cultural resources either listed or eligible for listing by the State or local listing were identified on the Project site as a result of the records search and AB 52 consultation. Therefore, the Project would result in a less-than-significant impact.

b) **Less-than-Significant Impact.** As discussed above, no tribes have had specific concerns regarding TCRs that could be present on the Project site and no TCRs were discovered during the cultural and paleontological resources investigation of the Project site (SAS, 2023). Therefore, the Project would result in a less-than-significant impact.

References

Solano Archaeological Services (SAS), 2023. *Project Oakstone Northern California Expansion Project, City of Pittsburg, Contra Costa County, California.* July 3, 2023.

UTILITIES AND SERVICE SYSTEMS

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
19. UTILITIES AND SERVICE SYSTEMS — Would the proposed project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
c) Result in a determination by the wastewater treatment provider that would serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

Setting

Water Supply

The City of Pittsburg obtains raw water from the Contra Costa Water District (CCWD), through the Central Valley Project (CVP). The CCWD's current contract for its entire service area is for 174 million gallons per day (City of Pittsburg, 2010). The City operates its own water treatment plant and associated infrastructure facilities, which primarily serve customers within City limits (City of Pittsburg, 2010). Treated water is distributed throughout Pittsburg via a 122-mile system pipeline.

Wastewater

Sewer services are provided to residents by the City and the Delta Diablo Sanitation District (DDSD). The City maintains and owns the local sewage collection system, and DDSD owns and operates the collection system in the Bay (City of Pittsburg, 2010).

Solid Waste

Solid waste pickup and disposal for the City is provided by Pittsburg Disposal Services (PDS) (City of Pittsburg, 2010).

Discussion

a) **Less-than-Significant Impact.** There are no existing water or wastewater treatment, stormwater, telecommunication, electric power, or natural gas facilities on-site. Natural gas would not be required for the Project. Electricity is currently provided to the existing facility on-site by a PG&E substation. The Project would require expansion of the existing 115/12.47 kV substation and would include adding one 115-12/47 kV, 280 MVA base transformer, one 115 kV gas circuit breaker, and one lineup of 12.47 kW outdoor metal-clad switchgear. Electric power and water lines would be extended into the Project site. Construction of these facilities would comply with all federal, state, and local regulations. Furthermore, the construction of these facilities has been analyzed in this Initial Study within the applicable resource sections (i.e., air quality, biological resources, cultural resources, geology and soils, hydrology and water quality, etc.) and all impacts would be less than significant. Therefore, the Project would result in a less-than-significant impact.

b) **Less-than-Significant Impact.** As mentioned above, the City of Pittsburg obtains raw water from the CCWD, through the CVP. The CCWD's current contract for its entire service area is for 174 million gallons per day. The Project would connect to the City's domestic water supply and would be expected to use approximately 65.7 million gallons per year. This Project water demand would not adversely affect the water supply the City obtains from the CCWD. Therefore, the Project would result in a less-than-significant impact.

c) **Less-than-Significant Impact.** Project-generated wastewater would be conveyed by the municipal sewer system. Any generation of wastewater from an additional 4 employees would be negligible and would not require additional capacity beyond the wastewater treatment already provided by the City. Therefore, the Project would result in a less-than-significant impact.

d, e) **Less-than-Significant Impact.** Construction and operation of the Project is not expected to generate a significant amount of solid waste and would comply with all federal, state, and local statutes and regulations related to solid waste. Therefore, the Project would result in a less-than-significant impact.

References

City of Pittsburg. 2010. *City of Pittsburg 2020 General Plan, Chapter 11 Public Facilities.*

WILDFIRE

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
20. WILDFIRE — If located in or near state responsibility areas or lands classified as very high hazard severity zones, **would the proposed project:**				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

Introduction

Areas where the state has financial responsibility for wildland fire protection are known as state responsibility areas (SRA). The Department of Forestry and Fire Protection (CALFIRE) is responsible for fire prevention and suppression in SRA. Areas where local governments have financial responsibility for wildland fire protection are known as local responsibility areas (LRA). The Project site is not located in a SRA or a very high fire hazard severity zone (VHFHSZ). The nearest fire station is CCCFPD Station 85, located approximately 3,700 feet south on Loveridge Road.

Discussion

a) **No Impact.** The Project would not involve the closure or alteration of any existing evacuation route that would be important in the event of a wildfire. The Project would not impede or require diversion of rescue vehicles or evacuation traffic in the event of a wildfire. Therefore, the Project would result in no impact.

b) **No Impact.** The Project site is located in a relatively flat area in an urbanized industrial area of the City. Any wildfire risk due to slope, prevailing winds, and other factors would not be exclusive to the Project site. There are no elements of the Project that would exacerbate wildland fire risk in the Project area due to slope, prevailing winds, and other factors. Therefore, the Project would result in no impact.

c) **No Impact.** There are no elements of the Project that would exacerbate wildland fire risk in the Project area. Therefore, the Project would result in no impact.

d) **No Impact.** There are no elements of the Project that would expose future employees or structures to flooding or landslides by runoff flow, post-fire instability, or drainage changes. Therefore, the Project would result in no impact.

References

Calfire. 2023. *FHSZ Viewer,* https://egis.fire.ca.gov/FHSZ/, accessed June 20, 2023.

MANDATORY FINDINGS OF SIGNIFICANCE

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
21. MANDATORY FINDINGS OF SIGNIFICANCE — Would the proposed project:				
a) Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☒	☐	☐
c) Have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Discussion

a) **Less-than-Significant Impact with Mitigation.** As noted in the Cultural Resources section, the Project would not eliminate important examples of the major periods of California history or prehistory. As noted in the Biological Resources section, the Project would mitigate any potentially significant impacts related to direct and indirect impacts to habitat, special-status species, and aquatic resources through the implementation of **Mitigation Measures BIO-1** through **BIO-6**. Therefore, the Project would result in a less-than-significant impact with mitigation.

b) **Less-than-Significant Impact with Mitigation.** The following presents an analysis of if the Project would result in cumulatively considerable impacts when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. According to the City of Pittsburg, there are two proposed industrial projects within one mile of the project site. These include the K2 Pure Chlorine Rail Transport Curtailment Project and the HASA Norcal Project at 901 Loveridge Road approximately ¾ mile northeast of the Project site. A Notice of Preparation was also released in September 2023 for the H Cycle Pittsburg Renewable Hydrogen Project, which is approximately 1.1 miles northeast of the Project site.

As described in the preceding sections of this Initial Study, the Project would result in no impacts to agricultural and forest resources, mineral resources, population and housing, recreation, or wildfire. Because the Project would have no impact for these topic areas, there is no potential for the Project to have cumulatively considerable impacts.

As described in the preceding sections of this Initial Study, the Project would result in less than significant impacts to aesthetics, land use and land use planning, public services, and utility and service systems. The Project is consistent with the land use and zoning designations for the parcel and would not conflict with land use policies or regulations with the required City Use Permit, Design Review, and Variance Application for the approval of the 137-foot distillation tower. Because the Project would not conflict with City land use policies and regulations and the impact for these topic areas would be less than significant, there is no potential for the Project to have cumulatively considerable impacts for these topic areas.

As noted in the Air Quality section, the BAAQMD *CEQA Air Quality Guidelines* recommend that cumulative air quality effects from criteria air pollutants also be addressed by comparison to the mass daily and annual thresholds. These thresholds were developed to identify a cumulatively considerable contribution to a significant regional air quality impact. As disclosed in the Air Quality section, the Project-related construction and operational emissions would be below the BAAQMD's mass daily and annual significance thresholds. Therefore, the Project would not result in a cumulatively considerable net increase of emissions of criteria air pollutants and precursors and there is no potential for the Project to have cumulatively considerable air quality impacts.

As noted in the Biological Resources section, **Mitigation Measures BIO-1** through **BIO-5** would mitigate any potentially significant impacts related to substantial direct and indirect impacts to habitat and special-status species, substantial interference with the movement of wildlife species, and conflicts with the HCP. **Mitigation Measure BIO-6** would ensure that sensitive aquatic resources would be avoided by the Project. With these mitigation measures and required compliance with the HCP, impacts to biological resources would be fully mitigated and there is no potential for the Project to have cumulatively considerable biological resources impacts.

As noted in the Cultural Resources and Tribal Cultural Resources sections, no historical resources exist on the Project site and the Project area exhibits a low/moderate level of sensitivity for retaining traces of early Native American activity. Due to a lack of identified cultural resources and sensitive landforms, the Project would result in a less-than-significant cultural resources impact. **Mitigation Measure CUL-1** would mitigate any potentially significant impacts related to the discovery or recognition of human remains or associated funerary artifacts during Project construction. With this mitigation measure, impacts to cultural resources would be fully mitigated and there is no potential for the Project to have cumulatively considerable cultural resources or tribal cultural resources impacts.

As noted in the GHG Emissions section, because the issue of global climate change is inherently a cumulative issue, the contribution of Project-related GHG emissions to climate change is addressed as a cumulative impact and the Project's contribution to global climate change would be less than cumulatively considerable. Energy use and the indirect GHG emissions generated through energy use is also a cumulative issue, as the State adopts regulations to reduce energy use and increase renewable energy in order to improve capacity and reliability, while reducing dependence on fossil fuels in order to reduce GHG emissions. As noted in the Energy section, the Project would not result in a wasteful, inefficient, or unnecessary consumption of energy resources or conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Therefore, there is no potential for the Project to have cumulatively considerable energy impacts.

Geology and soils impacts are site specific and do not have the potential for cumulative impacts.

As noted in the Hazards and Hazardous Materials section, products of the air-separation process do not pose a significant hazard to the public or environment if released and therefore, this impact is less than significant. The transportation and use of hazardous materials at the Project site would be in accordance with prescribed federal and state regulations addressing hazardous materials management. Therefore, there is no potential for the Project to have cumulatively considerable hazards or hazardous materials impacts.

As noted in the Hydrology and Water Quality section, required compliance with the prescriptions set forth by the CGP, SWPPP, and the post-construction requirements of the CCCWP and the General Industrial Permit, including implementation of design features and pollutant source controls, would prevent the discharge of pollutants to surface waters or groundwater and minimize or eliminate the potential for degradation of surface water or groundwater quality that could result from implementation of the proposed Project. Thus, there is no potential for the Project to have cumulatively considerable hydrology and water quality impacts.

As noted in the Noise section, construction would only occur within the allowable hours outlined in General Plan City of Pittsburg Municipal Code and Project construction would not exceed standards established in the local general plan or noise ordinance.

Cumulative operational noise from both the Project and the existing air separation facility would be below 65 dB at the nearest property with a Residential zoning designation and thus would not exceed standards established in the local general plan or noise ordinance. Thus, there is no potential for the Project to have cumulatively considerable noise impacts.

As noted in the Transportation section, the Project is estimated to generate up to 48 one-way trips per day, which is below the OPR's threshold of 110 average daily trips. As the 110 average daily trips threshold would not be exceeded, the Project's VMT impacts can be presumed to be less than significant. VMT impacts are inherently a cumulative issue as the State signed SB 743 into law to reduce statewide VMT to reduce statewide GHG emissions. Thus, there is no potential for the Project to have cumulatively considerable transportation impacts.

Considering the factors addressed above, the Project would not have a cumulatively considerable impact on any of the environmental factors evaluated in this Initial Study with mitigation incorporated. The Project site is within an industrial area of the City and would not substantially contribute to cumulative impacts associated with development of the Project area. Therefore, cumulative impacts would be less than significant with mitigation incorporated and the Project would not result in cumulatively considerable impacts when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.

c) **Less-than-Significant Impact with Mitigation.** As described in the preceding sections of this Initial Study, the Project would not result in impacts that would result in substantial adverse effects on human beings, either directly or indirectly. The Project would not result in significant impacts to air quality (including health risk), GHG emissions, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, and wildfire with mitigation incorporated. Therefore, the Project would result in a less-than-significant impact with mitigation.

APPENDIX A

AIR QUALITY, GREENHOUSE GAS EMISSIONS, & ENERGY SUPPORTING INFORMATION

Criteria Pollutant Emissions Summary

Source		Average Daily Construction Emissions				
		ROG	NOx	PM10e	PM2.5e	CO
	2024	1.6	15.6	0.7	0.6	15.6
	2025	0.3	2.4	0.1	0.1	2.8

	Average Daily Operational Emissions				
Source	ROG	NOx	PM10	PM2.5	CO
Mobile	0.2	14.3	3.5	1.1	6.4
Area	0.0	0.0	0.0	0.0	0.0
Total	**0.2**	**14.3**	**3.5**	**1.1**	**6.4**

	Annual Operational Emissions				
Source	ROG	NOx	PM10	PM2.5	CO
Mobile	0.0	2.6	0.6	0.2	1.2
Area	0.0	0.0	0.0	0.0	0.0
Total	**0.0**	**2.6**	**0.6**	**0.2**	**1.2**

Energy Use Summary

Construction Fuel Usage

637 MT CO2 10.16 kg/CO2/gal 62,726 gals Diesel	24 MT CO2 8.9 kg/CO2/gal 2,663 gals Gas

Operational Fuel Usage

2117 MT CO2 10.16 kg/CO2/gal 208,366 gals Diesel	58400 VMT 20 MPG 2,920 gals Gas

Construction GHG Emissions

Year	Total (CO2e)
2024	552
2025	109
	661

Operational GHG Emissions

Year	Mobile Emissions	Electricity Usage	Water Usage	Total (CO2e)
2025	2117	1168	108	3393
2026	2076	3115	108	5299
2027	2028	2505	108	4641
2028	1976	3894	108	5978
2029	1922	4283	108	6313
2030	1867	4790	108	6765

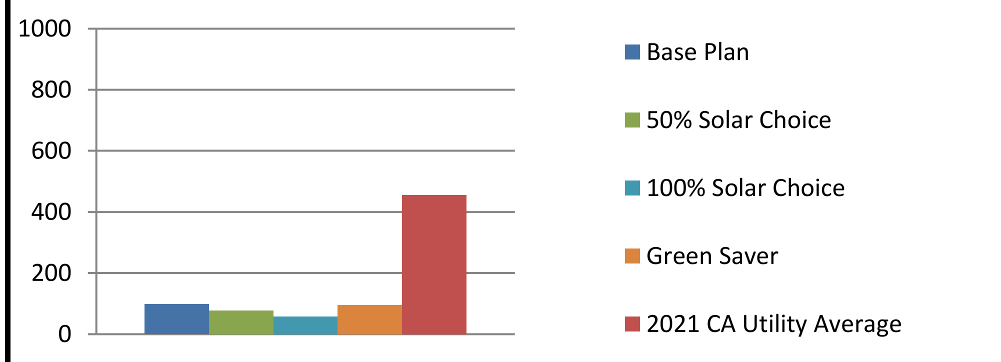
2021 POWER CONTENT LABEL

Pacific Gas and Electric Company

www.pge.com/billinserts

Greenhouse Gas Emissions Intensity ($lbs\ CO_2e/MWh$)

Base Plan	50% Solar Choice	100% Solar Choice	Green Saver	2021 CA Utility Average
98	78	58	95	456



Energy Resources	Base Plan	50% Solar Choice	100% Solar Choice	Green Saver	2021 CA Power Mix
Eligible Renewable[1]	**47.7%**	**70.9%**	**93.9%**	**89.9%**	**33.6%**
Biomass & Biowaste	4.2%	2.1%	0.0%	0.0%	2.3%
Geothermal	5.2%	2.6%	0.0%	0.0%	4.8%
Eligible Hydroelectric	1.8%	0.9%	0.0%	0.0%	1.0%
Solar	25.7%	59.8%	93.9%	89.9%	14.2%
Wind	10.9%	5.5%	0.0%	0.0%	11.4%
Coal	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**3.0%**
Large Hydroelectric	**4.0%**	**2.0%**	**0.0%**	**0.0%**	**9.2%**
Natural Gas	**8.9%**	**7.4%**	**0.0%**	**0.0%**	**37.9%**
Nuclear	**39.3%**	**19.7%**	**0.0%**	**0.0%**	**9.3%**
Other	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.2%**
Unspecified Power[2]	**0.0%**	**0.0%**	**6.1%**	**10.1%**	**6.8%**
TOTAL	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Percentage of Retail Sales Covered by Retired Unbundled RECs[3]**:**	**4%**	**0%**	**0%**	**0%**	

[1]The eligible renewable percentage above does not reflect RPS compliance, which is determined using a different methodology.

[2]Unspecified power is electricity that has been purchased through open market transactions and is not traceable to a specific generation source.

[3]Renewable energy credits (RECs) are tracking instruments issued for renewable generation. Unbundled renewable energy credits (RECs) represent renewable generation that was not delivered to serve retail sales. Unbundled RECs are not reflected in the power mix or GHG emissions intensities above.

For specific information about this electricity portfolio, contact:	**Pacific Gas and Electric Company** **1-800-743-5000**
For general information about the Power Content Label, visit:	http://www.energy.ca.gov/pcl/
For additional questions, please contact the California Energy Commission at:	Toll-free in California: 844-454-2906 Outside California: 916-653-0237

Oakstone Northern CA Expansion Project Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Oakstone Northern CA Expansion Project
Construction Start Date	2/5/2024
Lead Agency	City of Pittsburg
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.60
Precipitation (days)	0.80
Location	2000 Loveridge Rd, Pittsburg, CA 94565, USA
County	Contra Costa
City	Pittsburg
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1347
EDFZ	1
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.14

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Heavy Industry	1.00	1000sqft	1.95	1,000	0.00	0.00	—	—

Other Asphalt Surfaces	45.5	1000sqft	1.05	0.00	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.76	39.1	35.2	0.06	1.64	20.4	22.1	1.50	10.3	11.8	—	7,810	7,810	0.41	0.43	5.84	7,953
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.76	39.2	35.1	0.06	1.64	20.4	22.1	1.50	10.3	11.8	—	7,797	7,797	0.41	0.43	0.15	7,935
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.63	15.6	15.6	0.03	0.67	3.97	4.64	0.61	1.96	2.57	—	3,296	3,296	0.15	0.12	0.81	3,337
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.30	2.84	2.84	0.01	0.12	0.73	0.85	0.11	0.36	0.47	—	546	546	0.03	0.02	0.13	552
Exceeds (Daily Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	54.0	54.0	—	—	82.0	—	—	54.0	—	—	—	—	—	—	—	—	—
Unmit.	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—	—	—

Exceeds (Average Daily)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	54.0	54.0	—	—	82.0	—	—	54.0	—	—	—	—	—	—	—	—	—
Unmit.	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

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

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	3.76	39.1	35.2	0.06	1.64	20.4	22.1	1.50	10.3	11.8	—	7,810	7,810	0.41	0.43	5.84	7,953
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	3.76	39.2	35.1	0.06	1.64	20.4	22.1	1.50	10.3	11.8	—	7,797	7,797	0.41	0.43	0.15	7,935
2025	1.54	14.3	16.8	0.03	0.57	0.28	0.85	0.52	0.07	0.59	—	3,874	3,874	0.17	0.10	0.05	3,908
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.63	15.6	15.6	0.03	0.67	3.97	4.64	0.61	1.96	2.57	—	3,296	3,296	0.15	0.12	0.81	3,337
2025	0.26	2.42	2.83	0.01	0.10	0.05	0.14	0.09	0.01	0.10	—	655	655	0.03	0.02	0.13	661
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.30	2.84	2.84	0.01	0.12	0.73	0.85	0.11	0.36	0.47	—	546	546	0.03	0.02	0.13	552
2025	0.05	0.44	0.52	< 0.005	0.02	0.01	0.03	0.02	< 0.005	0.02	—	108	108	< 0.005	< 0.005	0.02	109

3. Construction Emissions Details

3.1. Site Preparation (2024) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.65	36.0	32.9	0.05	1.60	—	1.60	1.47	—	1.47	—	5,296	5,296	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.65	36.0	32.9	0.05	1.60	—	1.60	1.47	—	1.47	—	5,296	5,296	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.58	5.71	5.23	0.01	0.25	—	0.25	0.23	—	0.23	—	842	842	0.03	0.01	—	844
Dust From Material Movement	—	—	—	—	—	3.13	3.13	—	1.61	1.61	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	1.04	0.95	< 0.005	0.05	—	0.05	0.04	—	0.04	—	139	139	0.01	< 0.005	—	140
Dust From Material Movement	—	—	—	—	—	0.57	0.57	—	0.29	0.29	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.05	0.79	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	157	157	< 0.005	0.01	0.66	160
Vendor	0.01	0.23	0.11	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	164	164	0.01	0.02	0.43	172
Hauling	0.05	2.83	1.34	0.01	0.04	0.56	0.60	0.03	0.15	0.18	—	2,192	2,192	0.18	0.35	4.74	2,307
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.67	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	144	144	< 0.005	0.01	0.02	146
Vendor	0.01	0.24	0.11	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	165	165	0.01	0.02	0.01	172
Hauling	0.04	2.98	1.35	0.01	0.04	0.56	0.60	0.03	0.15	0.18	—	2,193	2,193	0.18	0.35	0.12	2,303
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.10	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	23.1	23.1	< 0.005	< 0.005	0.05	23.5
Vendor	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.1	26.1	< 0.005	< 0.005	0.03	27.4
Hauling	0.01	0.47	0.21	< 0.005	0.01	0.09	0.09	< 0.005	0.02	0.03	—	348	348	0.03	0.06	0.33	366
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.83	3.83	< 0.005	< 0.005	0.01	3.88
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.33	4.33	< 0.005	< 0.005	< 0.005	4.53
Hauling	< 0.005	0.08	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	57.7	57.7	< 0.005	0.01	0.05	60.6

3.3. Grading (2024) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.90	18.2	18.8	0.03	0.84	—	0.84	0.77	—	0.77	—	2,958	2,958	0.12	0.02	—	2,969
Dust From Material Movement	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	1.50	1.55	< 0.005	0.07	—	0.07	0.06	—	0.06	—	243	243	0.01	< 0.005	—	244
Dust From Material Movement	—	—	—	—	—	0.58	0.58	—	0.28	0.28	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.27	0.28	< 0.005	0.01	—	0.01	0.01	—	0.01	—	40.3	40.3	< 0.005	< 0.005	—	40.4

Dust From Material Movement	—	—	—	—	—	0.11	0.11	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.04	0.68	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	135	135	< 0.005	< 0.005	0.57	137
Vendor	0.01	0.23	0.11	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	164	164	0.01	0.02	0.43	172
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	10.2	10.2	< 0.005	< 0.005	0.02	10.4
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	13.5	13.5	< 0.005	< 0.005	0.02	14.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.70	1.70	< 0.005	< 0.005	< 0.005	1.72
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.24	2.24	< 0.005	< 0.005	< 0.005	2.34
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Building Construction (2024) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.55	14.7	15.9	0.03	0.64	—	0.64	0.59	—	0.59	—	3,264	3,264	0.13	0.03	—	3,275
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.55	14.7	15.9	0.03	0.64	—	0.64	0.59	—	0.59	—	3,264	3,264	0.13	0.03	—	3,275
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53	5.01	5.41	0.01	0.22	—	0.22	0.20	—	0.20	—	1,111	1,111	0.05	0.01	—	1,115
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.91	0.99	< 0.005	0.04	—	0.04	0.04	—	0.04	—	184	184	0.01	< 0.005	—	185
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.05	0.90	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	180	180	< 0.005	0.01	0.76	183
Vendor	0.01	0.23	0.11	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	164	164	0.01	0.02	0.43	172
Hauling	0.01	0.38	0.18	< 0.005	0.01	0.07	0.08	< 0.005	0.02	0.02	—	292	292	0.02	0.05	0.63	307

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.76	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	164	164	< 0.005	0.01	0.02	167
Vendor	0.01	0.24	0.11	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	165	165	0.01	0.02	0.01	172
Hauling	0.01	0.40	0.18	< 0.005	0.01	0.07	0.08	< 0.005	0.02	0.02	—	292	292	0.02	0.05	0.02	306
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.25	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	56.6	56.6	< 0.005	< 0.005	0.11	57.5
Vendor	< 0.005	0.08	0.04	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	56.0	56.0	< 0.005	0.01	0.06	58.6
Hauling	< 0.005	0.13	0.06	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	99.3	99.3	0.01	0.02	0.09	104
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.37	9.37	< 0.005	< 0.005	0.02	9.51
Vendor	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.27	9.27	< 0.005	< 0.005	0.01	9.71
Hauling	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	16.4	16.4	< 0.005	< 0.005	0.02	17.3

3.7. Building Construction (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.46	13.6	15.8	0.03	0.56	—	0.56	0.52	—	0.52	—	3,264	3,264	0.13	0.03	—	3,275
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.25	2.31	2.67	0.01	0.09	—	0.09	0.09	—	0.09	—	552	552	0.02	< 0.005	—	554
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.42	0.49	< 0.005	0.02	—	0.02	0.02	—	0.02	—	91.4	91.4	< 0.005	< 0.005	—	91.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.71	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	161	161	< 0.005	0.01	0.02	163
Vendor	0.01	0.23	0.11	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	162	162	0.01	0.02	0.01	169
Hauling	0.01	0.38	0.18	< 0.005	0.01	0.07	0.08	< 0.005	0.02	0.02	—	286	286	0.02	0.05	0.02	300
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.12	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.6	27.6	< 0.005	< 0.005	0.05	28.0
Vendor	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	27.4	27.4	< 0.005	< 0.005	0.03	28.6
Hauling	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	48.4	48.4	< 0.005	0.01	0.05	50.8
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	4.56	4.56	< 0.005	< 0.005	0.01	4.63
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.53	4.53	< 0.005	< 0.005	0.01	4.74
Hauling	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.01	8.01	< 0.005	< 0.005	0.01	8.41

3.9. Paving (2024) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.76	6.87	8.89	0.01	0.33	—	0.33	0.30	—	0.30	—	1,351	1,351	0.05	0.01	—	1,355
Paving	0.15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.34	0.44	< 0.005	0.02	—	0.02	0.01	—	0.01	—	66.6	66.6	< 0.005	< 0.005	—	66.8
Paving	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.0	11.0	< 0.005	< 0.005	—	11.1
Paving	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.08	0.05	0.90	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	180	180	< 0.005	0.01	0.76	183
Vendor	0.01	0.23	0.11	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	164	164	0.01	0.02	0.43	172
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.20	8.20	< 0.005	< 0.005	0.02	8.32
Vendor	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.11	8.11	< 0.005	< 0.005	0.01	8.49
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.36	1.36	< 0.005	< 0.005	< 0.005	1.38
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.34	1.34	< 0.005	< 0.005	< 0.005	1.41
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Trenching (2024) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.56	14.5	13.9	0.02	0.68	—	0.68	0.62	—	0.62	—	2,181	2,181	0.09	0.02	—	2,188
Architectural Coatings	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	2.15	2.06	< 0.005	0.10	—	0.10	0.09	—	0.09	—	323	323	0.01	< 0.005	—	324
Architectural Coatings	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.39	0.38	< 0.005	0.02	—	0.02	0.02	—	0.02	—	53.4	53.4	< 0.005	< 0.005	—	53.6
Architectural Coatings	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.03	0.56	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	112	112	< 0.005	< 0.005	0.47	114
Vendor	0.01	0.23	0.11	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	164	164	0.01	0.02	0.43	172
Hauling	< 0.005	0.19	0.09	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	146	146	0.01	0.02	0.32	153
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	15.4	15.4	< 0.005	< 0.005	0.03	15.6

Vendor	< 0.005	0.03	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	24.3	24.3	< 0.005	< 0.005	0.03	25.5
Hauling	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	21.6	21.6	< 0.005	< 0.005	0.02	22.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.55	2.55	< 0.005	< 0.005	0.01	2.58
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.03	4.03	< 0.005	< 0.005	< 0.005	4.22
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.57	3.57	< 0.005	< 0.005	< 0.005	3.75

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

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

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

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

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

Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	2/5/2024	4/11/2024	6.00	58.0	—
Grading	Grading	4/12/2024	5/16/2024	6.00	30.0	—
Equipment Installation	Building Construction	8/9/2024	3/13/2025	6.00	186	—
Paving	Paving	7/19/2024	8/8/2024	6.00	18.0	—
Utilities	Trenching	5/17/2024	7/18/2024	6.00	54.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Equipment Installation	Cranes	Diesel	Average	2.00	7.00	367	0.29
Equipment Installation	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Equipment Installation	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Equipment Installation	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Equipment Installation	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Cement and Mortar Mixers	Diesel	Average	2.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	6.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	6.00	36.0	0.38
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Utilities	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Utilities	Trenchers	Diesel	Average	1.00	8.00	40.0	0.50
Utilities	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Utilities	Forklifts	Diesel	Average	2.00	8.00	82.0	0.20

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	11.7	LDA,LDT1,LDT2
Site Preparation	Vendor	6.00	8.40	HHDT,MHDT
Site Preparation	Hauling	30.1	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	15.0	11.7	LDA,LDT1,LDT2
Grading	Vendor	6.00	8.40	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Equipment Installation	—	—	—	—
Equipment Installation	Worker	20.0	11.7	LDA,LDT1,LDT2
Equipment Installation	Vendor	6.00	8.40	HHDT,MHDT
Equipment Installation	Hauling	4.00	20.0	HHDT
Equipment Installation	Onsite truck	0.00	—	HHDT
Paving	—	—	—	—
Paving	Worker	20.0	11.7	LDA,LDT1,LDT2
Paving	Vendor	6.00	8.40	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Utilities	—	—	—	—
Utilities	Worker	12.5	11.7	LDA,LDT1,LDT2
Utilities	Vendor	6.00	8.40	HHDT,MHDT

Utilities	Hauling	2.00	20.0	HHDT
Utilities	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Utilities	0.00	0.00	0.00	0.00	2,732

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	13,950	—	87.0	0.00	—
Grading	—	—	30.0	0.00	—
Paving	0.00	0.00	0.00	0.00	1.05

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
General Heavy Industry	0.00	0%
Other Asphalt Surfaces	1.05	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	204	0.03	< 0.005
2025	0.00	204	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

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

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	18.8	annual days of extreme heat
Extreme Precipitation	2.20	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

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

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

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

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

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

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

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	37.6
AQ-PM	25.5
AQ-DPM	80.2

Drinking Water	19.0
Lead Risk Housing	72.7
Pesticides	0.00
Toxic Releases	58.9
Traffic	45.9
Effect Indicators	—
CleanUp Sites	88.7
Groundwater	32.9
Haz Waste Facilities/Generators	88.8
Impaired Water Bodies	90.1
Solid Waste	65.2
Sensitive Population	—
Asthma	97.9
Cardio-vascular	88.4
Low Birth Weights	83.6
Socioeconomic Factor Indicators	—
Education	79.1
Housing	68.1
Linguistic	70.9
Poverty	86.5
Unemployment	91.9

7.2. Healthy Places Index Scores

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

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	14.67984088

Employed	10.32978314
Median HI	6.608494803
Education	—
Bachelor's or higher	15.24445015
High school enrollment	100
Preschool enrollment	28.08931092
Transportation	—
Auto Access	6.865135378
Active commuting	82.34312845
Social	—
2-parent households	8.186834339
Voting	51.8285641
Neighborhood	—
Alcohol availability	59.30963685
Park access	61.85037854
Retail density	62.92826896
Supermarket access	44.97626075
Tree canopy	62.95393302
Housing	—
Homeownership	22.76401899
Housing habitability	29.39817785
Low-inc homeowner severe housing cost burden	55.13922751
Low-inc renter severe housing cost burden	40.84434749
Uncrowded housing	36.78942641
Health Outcomes	—
Insured adults	31.56679071
Arthritis	0.0

Asthma ER Admissions	1.2
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	1.2
Cognitively Disabled	1.0
Physically Disabled	7.0
Heart Attack ER Admissions	3.0
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	71.1
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	19.0
Elderly	25.1
English Speaking	30.7

Foreign-born	49.5
Outdoor Workers	80.8
Climate Change Adaptive Capacity	—
Impervious Surface Cover	53.4
Traffic Density	74.9
Traffic Access	49.6
Other Indices	—
Hardship	85.4
Other Decision Support	—
2016 Voting	15.9

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	94.0
Healthy Places Index Score for Project Location (b)	16.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

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

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

This table summarizes the points earned for each health and equity measure category, and the total possible points for each category. If N/A is selected for any measure(s), the total possible points in that category are reduced accordingly. The points for each category are then weighted on a 15-point scale to determine the score per category and a total weighted score.

Category	Number of Applicable Measures	Total Points Earned by Applicable Measures	Max Possible Points	Weighted Score

Community-Centered Development	5.00	0.00	25.0	0.00
Inclusive Engagement	6.00	0.00	30.0	0.00
Accountability	5.00	0.00	25.0	0.00
Construction Equity	6.00	0.00	30.0	0.00
Public Health and Air Quality	4.00	0.00	20.0	0.00
Inclusive Economics & Prosperity	4.00	0.00	20.0	0.00
Inclusive Communities	4.00	0.00	20.0	0.00
Total	34.0	0.00	170	0.00

Based on the weighted score of 0 out of a total 170 possible points, your project qualifies for the Acorn equity award level.
Organization(s) consulted by the user to complete the Health & Equity Scorecard:

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	The Project would not construct buildings. 1,000 SF is input so energy usage can be calculated. Three acre project site and 45,548 SF of paving.
Construction: Construction Phases	Linde Inc., 2023.
Construction: Off-Road Equipment	Linde Inc., 2023
Construction: Trips and VMT	Conservative Assumption for Equipment Installation since no buildings are being built CalEEMod cannot generate defaults for the building construction phase. Added additional vendor and haul truck trips for water trucks, cement trucks, and building materials.

Construction: Architectural Coatings	No buildings and no coating.
Operations: Consumer Products	Construction Only
Operations: Architectural Coatings	Construction Only
Operations: Landscape Equipment	Construction Only

Oakstone Nor Cal Expansion Operations 2025 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Oakstone Nor Cal Expansion Operations 2025
Operational Year	2025
Lead Agency	City of Pittsburg
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.60
Precipitation (days)	0.80
Location	38.015933667714876, -121.86543799590572
County	Contra Costa
City	Pittsburg
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1347
EDFZ	1
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.14

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Asphalt Surfaces	45.5	1000sqft	1.05	0.00	0.00	0.00	—	—

General Heavy Industry	1.00	1000sqft	1.95	1,000	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

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

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.21	13.8	6.49	0.11	0.19	3.27	3.47	0.19	0.88	1.07	127	19,357	19,484	13.9	2.24	27.5	20,525
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.21	14.5	6.43	0.11	0.19	3.27	3.47	0.19	0.88	1.07	127	19,349	19,475	13.9	2.24	0.97	20,490
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.21	14.3	6.42	0.11	0.19	3.27	3.47	0.19	0.88	1.07	127	19,349	19,476	13.9	2.24	12.0	20,502
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.04	2.60	1.17	0.02	0.04	0.60	0.63	0.03	0.16	0.19	21.0	3,203	3,224	2.30	0.37	1.99	3,394

2.5. Operations Emissions by Sector, Unmitigated

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

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.18	13.8	6.49	0.11	0.19	3.27	3.47	0.19	0.88	1.07	—	12,187	12,187	0.89	1.93	27.3	12,812
Area	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	7,056	7,056	0.00	0.00	—	7,056
Water	—	—	—	—	—	—	—	—	—	—	126	114	240	12.9	0.31	—	654
Waste	—	—	—	—	—	—	—	—	—	—	0.67	0.00	0.67	0.07	0.00	—	2.34
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.26	0.26
Total	0.21	13.8	6.49	0.11	0.19	3.27	3.47	0.19	0.88	1.07	127	19,357	19,484	13.9	2.24	27.5	20,525
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.18	14.5	6.43	0.11	0.19	3.27	3.47	0.19	0.88	1.07	—	12,178	12,178	0.89	1.93	0.71	12,777
Area	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	7,056	7,056	0.00	0.00	—	7,056
Water	—	—	—	—	—	—	—	—	—	—	126	114	240	12.9	0.31	—	654
Waste	—	—	—	—	—	—	—	—	—	—	0.67	0.00	0.67	0.07	0.00	—	2.34
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.26	0.26
Total	0.21	14.5	6.43	0.11	0.19	3.27	3.47	0.19	0.88	1.07	127	19,349	19,475	13.9	2.24	0.97	20,490
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.18	14.3	6.42	0.11	0.19	3.27	3.47	0.19	0.88	1.07	—	12,179	12,179	0.89	1.93	11.8	12,789
Area	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	7,056	7,056	0.00	0.00	—	7,056
Water	—	—	—	—	—	—	—	—	—	—	126	114	240	12.9	0.31	—	654
Waste	—	—	—	—	—	—	—	—	—	—	0.67	0.00	0.67	0.07	0.00	—	2.34
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.26	0.26
Total	0.21	14.3	6.42	0.11	0.19	3.27	3.47	0.19	0.88	1.07	127	19,349	19,476	13.9	2.24	12.0	20,502

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.03	2.60	1.17	0.02	0.04	0.60	0.63	0.03	0.16	0.19	—	2,016	2,016	0.15	0.32	1.95	2,117
Area	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	1,168	1,168	0.00	0.00	—	1,168
Water	—	—	—	—	—	—	—	—	—	—	20.8	18.9	39.8	2.14	0.05	—	108
Waste	—	—	—	—	—	—	—	—	—	—	0.11	0.00	0.11	0.01	0.00	—	0.39
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	0.04	2.60	1.17	0.02	0.04	0.60	0.63	0.03	0.16	0.19	21.0	3,203	3,224	2.30	0.37	1.99	3,394

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Asphalt Surfaces	0.02	0.01	0.34	< 0.005	< 0.005	0.11	0.11	< 0.005	0.03	0.03	—	97.4	97.4	< 0.005	< 0.005	0.43	98.4
General Heavy Industry	0.16	13.7	6.15	0.11	0.19	3.16	3.36	0.19	0.85	1.04	—	12,089	12,089	0.89	1.93	26.8	12,713
Total	0.18	13.8	6.49	0.11	0.19	3.27	3.47	0.19	0.88	1.07	—	12,187	12,187	0.89	1.93	27.3	12,812
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Other Asphalt Surfaces	0.02	0.02	0.27	< 0.005	< 0.005	0.11	0.11	< 0.005	0.03	0.03	—	88.1	88.1	< 0.005	< 0.005	0.01	88.8
General Heavy Industry	0.16	14.5	6.16	0.11	0.19	3.16	3.36	0.19	0.85	1.04	—	12,090	12,090	0.89	1.93	0.70	12,688
Total	0.18	14.5	6.43	0.11	0.19	3.27	3.47	0.19	0.88	1.07	—	12,178	12,178	0.89	1.93	0.71	12,777
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Asphalt Surfaces	< 0.005	< 0.005	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	14.8	14.8	< 0.005	< 0.005	0.03	14.9
General Heavy Industry	0.03	2.60	1.12	0.02	0.04	0.58	0.61	0.03	0.16	0.19	—	2,002	2,002	0.15	0.32	1.92	2,102
Total	0.03	2.60	1.17	0.02	0.04	0.60	0.63	0.03	0.16	0.19	—	2,016	2,016	0.15	0.32	1.95	2,117

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	7,056	7,056	0.00	0.00	—	7,056
Total	—	—	—	—	—	—	—	—	—	—	—	7,056	7,056	0.00	0.00	—	7,056

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	7,056	7,056	0.00	0.00	—	7,056
Total	—	—	—	—	—	—	—	—	—	—	—	7,056	7,056	0.00	0.00	—	7,056
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	1,168	1,168	0.00	0.00	—	1,168
Total	—	—	—	—	—	—	—	—	—	—	—	1,168	1,168	0.00	0.00	—	1,168

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
General Heavy Industry	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
General Heavy Industry	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
General Heavy Industry	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.3. Area Emissions by Source

4.3.2. Unmitigated

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

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

General Heavy Industry	—	—	—	—	—	—	—	—	—	—	126	114	240	12.9	0.31	—	654
Total	—	—	—	—	—	—	—	—	—	—	126	114	240	12.9	0.31	—	654
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	126	114	240	12.9	0.31	—	654
Total	—	—	—	—	—	—	—	—	—	—	126	114	240	12.9	0.31	—	654
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	20.8	18.9	39.8	2.14	0.05	—	108
Total	—	—	—	—	—	—	—	—	—	—	20.8	18.9	39.8	2.14	0.05	—	108

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

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

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

Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	0.67	0.00	0.67	0.07	0.00	—	2.34
Total	—	—	—	—	—	—	—	—	—	—	0.67	0.00	0.67	0.07	0.00	—	2.34
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	0.67	0.00	0.67	0.07	0.00	—	2.34
Total	—	—	—	—	—	—	—	—	—	—	0.67	0.00	0.67	0.07	0.00	—	2.34
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	0.11	0.00	0.11	0.01	0.00	—	0.39
Total	—	—	—	—	—	—	—	—	—	—	0.11	0.00	0.11	0.01	0.00	—	0.39

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.26	0.26
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.26	0.26
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.26	0.26
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.26	0.26
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

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

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

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

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

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

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

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

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

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

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

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

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

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

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

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

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequeste red	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequeste red	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Other Asphalt Surfaces	8.00	8.00	8.00	2,920	160	160	160	58,401

General Heavy Industry	40.0	40.0	40.0	14,600	3,440	3,440	3,440	1,255,600

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	0.00	0.00	2,744

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	0.00

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Other Asphalt Surfaces	0.00	98.0	0.0000	0.0000	0.00
General Heavy Industry	26,280,000	98.0	0.0000	0.0000	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Other Asphalt Surfaces	0.00	0.00
General Heavy Industry	65,700,000	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Other Asphalt Surfaces	0.00	—
General Heavy Industry	1.24	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Heavy Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

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

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	18.8	annual days of extreme heat
Extreme Precipitation	2.20	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

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

Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

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

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

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

Indicator	Result for Project Census Tract

Exposure Indicators	—
AQ-Ozone	37.6
AQ-PM	25.5
AQ-DPM	80.2
Drinking Water	19.0
Lead Risk Housing	72.7
Pesticides	0.00
Toxic Releases	58.9
Traffic	45.9
Effect Indicators	—
CleanUp Sites	88.7
Groundwater	32.9
Haz Waste Facilities/Generators	88.8
Impaired Water Bodies	90.1
Solid Waste	65.2
Sensitive Population	—
Asthma	97.9
Cardio-vascular	88.4
Low Birth Weights	83.6
Socioeconomic Factor Indicators	—
Education	79.1
Housing	68.1
Linguistic	70.9
Poverty	86.5
Unemployment	91.9

7.2. Healthy Places Index Scores

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

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	14.67984088
Employed	10.32978314
Median HI	6.608494803
Education	—
Bachelor's or higher	15.24445015
High school enrollment	100
Preschool enrollment	28.08931092
Transportation	—
Auto Access	6.865135378
Active commuting	82.34312845
Social	—
2-parent households	8.186834339
Voting	51.8285641
Neighborhood	—
Alcohol availability	59.30963685
Park access	61.85037854
Retail density	62.92826896
Supermarket access	44.97626075
Tree canopy	62.95393302
Housing	—
Homeownership	22.76401899
Housing habitability	29.39817785
Low-inc homeowner severe housing cost burden	55.13922751
Low-inc renter severe housing cost burden	40.84434749
Uncrowded housing	36.78942641

Health Outcomes	—
Insured adults	31.56679071
Arthritis	0.0
Asthma ER Admissions	1.2
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	1.2
Cognitively Disabled	1.0
Physically Disabled	7.0
Heart Attack ER Admissions	3.0
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	71.1
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0

Children	19.0
Elderly	25.1
English Speaking	30.7
Foreign-born	49.5
Outdoor Workers	80.8
Climate Change Adaptive Capacity	—
Impervious Surface Cover	53.4
Traffic Density	74.9
Traffic Access	49.6
Other Indices	—
Hardship	85.4
Other Decision Support	—
2016 Voting	15.9

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	94.0
Healthy Places Index Score for Project Location (b)	16.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

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

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

This table summarizes the points earned for each health and equity measure category, and the total possible points for each category. If N/A is selected for any measure(s), the total possible points in that category are reduced accordingly. The points for each category are then weighted on a 15-point scale to determine the score per category and a total weighted score.

Category	Number of Applicable Measures	Total Points Earned by Applicable Measures	Max Possible Points	Weighted Score
Community-Centered Development	5.00	0.00	25.0	0.00
Inclusive Engagement	6.00	0.00	30.0	0.00
Accountability	5.00	0.00	25.0	0.00
Construction Equity	6.00	0.00	30.0	0.00
Public Health and Air Quality	4.00	0.00	20.0	0.00
Inclusive Economics & Prosperity	4.00	0.00	20.0	0.00
Inclusive Communities	4.00	0.00	20.0	0.00
Total	34.0	0.00	170	0.00

Based on the weighted score of 0 out of a total 170 possible points, your project qualifies for the Acorn equity award level.
Organization(s) consulted by the user to complete the Health & Equity Scorecard:

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	1,000 sq ft of building input in order to add project specific information. No new buildings would be constructed with project. 3-acre site.
Operations: Vehicle Data	Four employees = eight one-way trips. Maximum of 20 truck trips = 40 one-way trips. Total 48 per day. See supporting appendix for trip distance calculations.

Operations: Fleet Mix	Employees assumed to be light duty automobiles. Truck trips assumed to be all heavy duty trucks.
Operations: Landscape Equipment	No landscaping.
Operations: Energy Use	No natural gas. Based on a peak demand for 2025 of 3 MW.
Operations: Water and Waste Water	125 gpm typical usage.
Characteristics: Utility Information	2021 Power Content Label Pacific Gas and Electric Company
Operations: Architectural Coatings	No painting for equipment, no new buildings.

Oakstone Nor Cal Expansion Operations 2026 Summary Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Oakstone Nor Cal Expansion Operations 2026
Operational Year	2026
Lead Agency	City of Pittsburg
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.60
Precipitation (days)	0.80
Location	38.015933667714876, -121.86543799590572
County	Contra Costa
City	Pittsburg
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1347
EDFZ	1
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.14

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Asphalt Surfaces	45.5	1000sqft	1.05	0.00	0.00	0.00	—	—

General Heavy Industry	1.00	1000sqft	1.95	1,000	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

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

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.20	13.2	6.28	0.11	0.19	3.28	3.47	0.18	0.88	1.06	127	30,878	31,004	13.8	2.20	25.8	32,031
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.20	13.9	6.22	0.11	0.19	3.28	3.47	0.18	0.88	1.06	127	30,870	30,996	13.8	2.20	0.92	31,999
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.20	13.7	6.21	0.11	0.19	3.28	3.47	0.18	0.88	1.06	127	30,870	30,997	13.8	2.20	11.3	32,009
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.04	2.50	1.13	0.02	0.04	0.60	0.63	0.03	0.16	0.19	21.0	5,111	5,132	2.29	0.36	1.87	5,300

6. Climate Risk Detailed Report

6.2. Initial Climate Risk Scores

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

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

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

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

7. Health and Equity Details

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	94.0
Healthy Places Index Score for Project Location (b)	16.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

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

7.5. Evaluation Scorecard

This table summarizes the points earned for each health and equity measure category, and the total possible points for each category. If N/A is selected for any measure(s), the total possible points in that category are reduced accordingly. The points for each category are then weighted on a 15-point scale to determine the score per category and a total weighted score.

Category	Number of Applicable Measures	Total Points Earned by Applicable Measures	Max Possible Points	Weighted Score
Community-Centered Development	5.00	0.00	25.0	0.00
Inclusive Engagement	6.00	0.00	30.0	0.00
Accountability	5.00	0.00	25.0	0.00
Construction Equity	6.00	0.00	30.0	0.00
Public Health and Air Quality	4.00	0.00	20.0	0.00
Inclusive Economics & Prosperity	4.00	0.00	20.0	0.00
Inclusive Communities	4.00	0.00	20.0	0.00
Total	34.0	0.00	170	0.00

Based on the weighted score of 0 out of a total 170 possible points, your project qualifies for the Acorn equity award level.
Organization(s) consulted by the user to complete the Health & Equity Scorecard:

Oakstone Nor Cal Expansion Operations 2027 Summary Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Oakstone Nor Cal Expansion Operations 2027
Operational Year	2027
Lead Agency	City of Pittsburg
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.60
Precipitation (days)	0.80
Location	38.015933667714876, -121.86543799590572
County	Contra Costa
City	Pittsburg
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1347
EDFZ	1
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.14

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Asphalt Surfaces	45.5	1000sqft	1.05	0.00	0.00	0.00	—	—

General Heavy Industry	1.00	1000sqft	1.95	1,000	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

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

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.20	12.7	6.07	0.11	0.19	3.28	3.47	0.18	0.88	1.06	127	32,960	33,086	13.8	2.16	23.6	34,098
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.19	13.4	6.02	0.11	0.19	3.28	3.47	0.18	0.88	1.06	127	32,952	33,078	13.8	2.16	0.87	34,067
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.19	13.2	6.01	0.11	0.19	3.28	3.47	0.18	0.88	1.06	127	32,952	33,079	13.8	2.16	10.4	34,077
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.04	2.40	1.10	0.02	0.03	0.60	0.63	0.03	0.16	0.19	21.0	5,456	5,477	2.28	0.36	1.71	5,642

6. Climate Risk Detailed Report

6.2. Initial Climate Risk Scores

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

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

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

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

7. Health and Equity Details

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	94.0
Healthy Places Index Score for Project Location (b)	16.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

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

7.5. Evaluation Scorecard

This table summarizes the points earned for each health and equity measure category, and the total possible points for each category. If N/A is selected for any measure(s), the total possible points in that category are reduced accordingly. The points for each category are then weighted on a 15-point scale to determine the score per category and a total weighted score.

Category	Number of Applicable Measures	Total Points Earned by Applicable Measures	Max Possible Points	Weighted Score
Community-Centered Development	5.00	0.00	25.0	0.00
Inclusive Engagement	6.00	0.00	30.0	0.00
Accountability	5.00	0.00	25.0	0.00
Construction Equity	6.00	0.00	30.0	0.00
Public Health and Air Quality	4.00	0.00	20.0	0.00
Inclusive Economics & Prosperity	4.00	0.00	20.0	0.00
Inclusive Communities	4.00	0.00	20.0	0.00
Total	34.0	0.00	170	0.00

Based on the weighted score of 0 out of a total 170 possible points, your project qualifies for the Acorn equity award level.
Organization(s) consulted by the user to complete the Health & Equity Scorecard:

Oakstone Nor Cal Expansion Operations 2028 Summary Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Oakstone Nor Cal Expansion Operations 2028
Operational Year	2028
Lead Agency	City of Pittsburg
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.60
Precipitation (days)	0.80
Location	38.015933667714876, -121.86543799590572
County	Contra Costa
City	Pittsburg
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1347
EDFZ	1
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.14

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Asphalt Surfaces	45.5	1000sqft	1.05	0.00	0.00	0.00	—	—

General Heavy Industry	1.00	1000sqft	1.95	1,000	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

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

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.19	12.2	5.87	0.10	0.19	3.28	3.47	0.18	0.88	1.06	127	35,011	35,137	13.7	2.11	21.6	36,132
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.18	12.8	5.82	0.10	0.19	3.28	3.47	0.18	0.88	1.06	127	35,003	35,130	13.7	2.11	0.81	36,103
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.19	12.6	5.82	0.10	0.19	3.28	3.47	0.18	0.88	1.06	127	35,004	35,130	13.7	2.11	9.48	36,112
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.03	2.30	1.06	0.02	0.03	0.60	0.63	0.03	0.16	0.19	21.0	5,795	5,816	2.28	0.35	1.57	5,979

6. Climate Risk Detailed Report

6.2. Initial Climate Risk Scores

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

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

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

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

7. Health and Equity Details

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	94.0
Healthy Places Index Score for Project Location (b)	16.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

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

7.5. Evaluation Scorecard

This table summarizes the points earned for each health and equity measure category, and the total possible points for each category. If N/A is selected for any measure(s), the total possible points in that category are reduced accordingly. The points for each category are then weighted on a 15-point scale to determine the score per category and a total weighted score.

Category	Number of Applicable Measures	Total Points Earned by Applicable Measures	Max Possible Points	Weighted Score
Community-Centered Development	5.00	0.00	25.0	0.00
Inclusive Engagement	6.00	0.00	30.0	0.00
Accountability	5.00	0.00	25.0	0.00
Construction Equity	6.00	0.00	30.0	0.00
Public Health and Air Quality	4.00	0.00	20.0	0.00
Inclusive Economics & Prosperity	4.00	0.00	20.0	0.00
Inclusive Communities	4.00	0.00	20.0	0.00
Total	34.0	0.00	170	0.00

Based on the weighted score of 0 out of a total 170 possible points, your project qualifies for the Acorn equity award level.
Organization(s) consulted by the user to complete the Health & Equity Scorecard:

Oakstone Nor Cal Expansion Operations 2029 Summary Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Oakstone Nor Cal Expansion Operations 2029
Operational Year	2029
Lead Agency	City of Pittsburg
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.60
Precipitation (days)	0.80
Location	38.015933667714876, -121.86543799590572
County	Contra Costa
City	Pittsburg
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1347
EDFZ	1
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.14

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Asphalt Surfaces	45.5	1000sqft	1.05	0.00	0.00	0.00	—	—

General Heavy Industry	1.00	1000sqft	1.95	1,000	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

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

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.18	11.7	5.67	0.10	0.18	3.28	3.46	0.18	0.88	1.06	127	37,052	37,178	13.7	2.06	19.7	38,155
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.18	12.3	5.63	0.10	0.18	3.28	3.46	0.18	0.88	1.06	127	37,044	37,171	13.7	2.06	0.76	38,129
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.18	12.1	5.62	0.10	0.18	3.28	3.46	0.18	0.88	1.06	127	37,045	37,171	13.7	2.06	8.64	38,137
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.03	2.21	1.03	0.02	0.03	0.60	0.63	0.03	0.16	0.19	21.0	6,133	6,154	2.27	0.34	1.43	6,314

6. Climate Risk Detailed Report

6.2. Initial Climate Risk Scores

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

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

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

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

7. Health and Equity Details

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	94.0
Healthy Places Index Score for Project Location (b)	16.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

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

7.5. Evaluation Scorecard

This table summarizes the points earned for each health and equity measure category, and the total possible points for each category. If N/A is selected for any measure(s), the total possible points in that category are reduced accordingly. The points for each category are then weighted on a 15-point scale to determine the score per category and a total weighted score.

Category	Number of Applicable Measures	Total Points Earned by Applicable Measures	Max Possible Points	Weighted Score
Community-Centered Development	5.00	0.00	25.0	0.00
Inclusive Engagement	6.00	0.00	30.0	0.00
Accountability	5.00	0.00	25.0	0.00
Construction Equity	6.00	0.00	30.0	0.00
Public Health and Air Quality	4.00	0.00	20.0	0.00
Inclusive Economics & Prosperity	4.00	0.00	20.0	0.00
Inclusive Communities	4.00	0.00	20.0	0.00
Total	34.0	0.00	170	0.00

Based on the weighted score of 0 out of a total 170 possible points, your project qualifies for the Acorn equity award level.
Organization(s) consulted by the user to complete the Health & Equity Scorecard:

Oakstone Nor Cal Expansion Operations 2030 Summary Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Oakstone Nor Cal Expansion Operations 2030
Operational Year	2030
Lead Agency	City of Pittsburg
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.60
Precipitation (days)	0.80
Location	38.015933667714876, -121.86543799590572
County	Contra Costa
City	Pittsburg
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1347
EDFZ	1
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.14

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Asphalt Surfaces	45.5	1000sqft	1.05	0.00	0.00	0.00	—	—

General Heavy Industry	1.00	1000sqft	1.95	1,000	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

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

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.18	11.3	5.44	0.10	0.18	3.28	3.46	0.17	0.88	1.06	127	39,793	39,919	13.7	2.01	17.8	40,878
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.17	11.9	5.39	0.10	0.18	3.28	3.46	0.17	0.88	1.06	127	39,785	39,912	13.7	2.01	0.71	40,853
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.18	11.7	5.39	0.10	0.18	3.28	3.46	0.17	0.88	1.06	127	39,786	39,912	13.7	2.01	7.82	40,861
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.03	2.13	0.98	0.02	0.03	0.60	0.63	0.03	0.16	0.19	21.0	6,587	6,608	2.26	0.33	1.30	6,765

6. Climate Risk Detailed Report

6.2. Initial Climate Risk Scores

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

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

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

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

7. Health and Equity Details

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	94.0
Healthy Places Index Score for Project Location (b)	16.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

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

7.5. Evaluation Scorecard

This table summarizes the points earned for each health and equity measure category, and the total possible points for each category. If N/A is selected for any measure(s), the total possible points in that category are reduced accordingly. The points for each category are then weighted on a 15-point scale to determine the score per category and a total weighted score.

Category	Number of Applicable Measures	Total Points Earned by Applicable Measures	Max Possible Points	Weighted Score
Community-Centered Development	5.00	0.00	25.0	0.00
Inclusive Engagement	6.00	0.00	30.0	0.00
Accountability	5.00	0.00	25.0	0.00
Construction Equity	6.00	0.00	30.0	0.00
Public Health and Air Quality	4.00	0.00	20.0	0.00
Inclusive Economics & Prosperity	4.00	0.00	20.0	0.00
Inclusive Communities	4.00	0.00	20.0	0.00
Total	34.0	0.00	170	0.00

Based on the weighted score of 0 out of a total 170 possible points, your project qualifies for the Acorn equity award level.
Organization(s) consulted by the user to complete the Health & Equity Scorecard:

APPENDIX B

HEALTH RISK ASSESSMENT

Health Risk Assessment
for the
Oakstone NorCal Expansion Project

City of Pittsburg, California

Prepared For:

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Prepared By:

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ENVIRONMENTAL CONSULTANTS

June 2023

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LIST OF ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
ASF	Age Sensitivity Factor
ATCM	Airborne Toxics Control Measure
BAAQMD	Bay Area Air Quality Management District
BR	Breathing Rate
BW	Body Weight
CAA	Clean Air Act
CARB	California Air Resources Board
City	City of Pittsburg
DPM	Diesel Particulate Matter
EF	Exposure Frequency
FAH	Fraction of time at home
GLC	Ground Level Concentration
HAP	Hazardous Air Pollutant
HARP2	Hot Spots Analysis & Reporting Program
HI	Hazard Index
HRA	Health Risk Assessment
kg	kilogram
L	liter
mg	milligram
MSAT	Mobile Source Air Toxic
NAAQS	National Ambient Air Quality Standards
NESHAPs	National Emissions Standards for Hazardous Air Pollutants
OEHHA	Office of Environment Health Hazard Assessment
PM	Particulate Matter
PM_{10}	Coarse Particulate Matter
$PM_{2.5}$	Fine Particulate Matter
Project	Oakstone NorCal Expansion Project
REL	Reference Exposure Level
SB	Senate Bill
SFBAAB	San Francisco Bay Area Air Basin
TAC	Toxic Air Contaminants
T-BACT	Toxics Best Available Control Technology
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
VOCs	Volatile Organic Compounds

1.0 INTRODUCTION

This report documents the results of a Construction and Operational Health Risk Assessment (HRA) completed for the Oakstone NorCal Expansion Project (Project), which proposes the expansion of an existing gas/ air separation plant in the City of Pittsburg, California. The purpose of this HRA is to evaluate potential health risks associated with exposure of toxic air contaminants (TACs) (or hazardous air pollutants [HAPs] in the federal parlance), including diesel particulate matter (DPM) generated by heavy-duty offroad equipment, vehicle idling, and truck traffic traversing the Project vicinity roadways as well as volatile organic compound (VOC) emissions from the proposed cooling tower. This HRA was prepared in accordance with the requirements of the Office of Environmental Health Hazard Assessment (OEHHA) to determine if health risks are likely to occur to existing residents and workers in the vicinity of the Project Site.

1.1 Project Location and Description

The 2.1-acre rectangular shaped Project Site is located on the northern boundary of the existing Linda Inc./ Praxair gas/ air separation plant located at 2000 Loveridge Road in the City of Pittsburg (City) (see Attachment A). The Project Site is relatively flat with no structures and is surrounded mainly by industrial land uses. The purpose of the Project is to expand production of liquid nitrogen, liquid oxygen, and liquid argon for distribution, via truck, to the San Francisco Bay Area, Central Valley and out of state markets. Nitrogen, oxygen, and argon are transformed into a liquid state through an air separation and liquification process.

The Project proposes the expansion of the existing facility with the construction of the following components:

- Two main air compressors.
- Two prepurifier vessels (which remove moisture, impurities and gases and return them back into the atmosphere).
- An industrial class chiller to pre-cool the air.
- One large distillation tower containing heat exchangers, booster compressor/turbine sets, and cryogenic distillation columns.
- Three individual sets of storage tanks for the three products (i.e., liquid nitrogen, liquid oxygen, and liquid argon).
- Interconnecting piping, instrumentation, and valving.
- An electric substation used to consume large amounts of electricity needed to operate the facility.
- A cooling tower, associated piping, and heat exchangers to remove the heat from the compressors.

It is noted that the Project does not propose the construction of any new buildings. Buildings at the existing facility would be used for Project employees. Trucks would enter and exit the Project Site using the existing entrance off Loveridge Road.

2.0 HEALTH RISK ASSESSMENT

2.1 Environmental Setting

Air quality in a region is determined by its topography, meteorology, and existing air pollutant sources. These factors are discussed below, along with the current regulatory structure that applies to the San Francisco Bay Area Air Basin (SFBAAB), which encompasses the Project Site, pursuant to the regulatory authority of the Bay Area Air Quality Management District (BAAQMD).

Ambient air quality is commonly characterized by climate conditions, the meteorological influences on air quality, and the quantity and type of pollutants released. The air basin is subject to a combination of topographical and climatic factors that reduce the potential for high levels of regional and local air pollutants. The following section describes the pertinent characteristics of the air basin and provides an overview of the physical conditions affecting pollutant dispersion in the Project Area.

2.1.1 San Francisco Bay Air Basin

The California Air Resources Board (CARB) divides the state into air basins that share similar meteorological and topographical features. The Project Site is located in the City of Pittsburg, located in Contra Costa County, which is located in the SFBAAB. The SFBAAB is approximately 5,600 square miles in area and consists of nine counties that surround the San Francisco Bay, including all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties; the southwestern portion of Solano County; and the southern portion of Sonoma County.

The topography of the SFBAAB is characterized by complex terrain, consisting of coastal mountain ranges, inland valleys and bays. This complex terrain, especially the higher elevations, distorts the normal wind flow patterns in the SFBAAB. The greatest distortions occur when low-level inversions are present and the air beneath the inversion flows independently of air above the inversion, a condition that is common in the summertime.

The air flowing in from the coast to the Central Valley, called the sea breeze, begins developing at or near ground level along the coast in late morning or early afternoon. As the day progresses, the sea breeze layer deepens and increases in velocity while spreading inland. The depth of the sea breeze depends in large part upon the height and strength of the inversion. If the inversion is low and strong, and hence stable, the flow of the sea breeze will be inhibited and stagnant conditions are likely to result.

Summertime temperatures in the SFBAAB are determined by the effect of differential heating between land and water surfaces. Because land tends to heat up and cool off more quickly than water, a large-scale gradient (differential) in temperature is often created between the coast and the Central Valley, and small-scale local gradients are often produced along the shorelines of the ocean and bays.

During the summer, winds flowing from the northwest are drawn inland through the Golden Gate and over the lower portions of the San Francisco Peninsula. Immediately south of Mount Tamalpais, the northwesterly winds accelerate considerably and come more directly from the west as they stream through the Golden Gate. This channeling of wind through the Golden Gate produces a jet that sweeps eastward and splits off to the northwest toward Richmond and to the southwest toward San Jose when it meets the East Bay hills. Wind speeds may be strong locally in areas where air is channeled through a narrow opening, such as the Carquinez Strait, the Golden Gate, or the San Bruno Gap.

An inversion is a layer of warmer air over a layer of cooler air. Inversions affect air quality conditions significantly because they influence the mixing depth, i.e., the vertical depth in the atmosphere available for diluting air contaminants near the ground. The highest air pollutant concentrations in the SFBAAB generally occur during inversions. The areas having the highest air pollution potential tend to be those that experience the highest temperatures in the summer and the lowest temperatures in the winter. The coastal areas are exposed to the prevailing marine air, creating cooler temperatures in the summer, warmer temperatures in winter, and stratus clouds all year. The inland valleys are sheltered from the marine air and experience hotter summers and colder winters. Thus, the topography of the inland valleys creates conditions conducive to high air pollution potential.

2.1.2 Toxic Air Contaminants

In addition to the criteria pollutants discussed above, TACs are another group of pollutants of concern. TACs are considered either carcinogenic or noncarcinogenic based on the nature of the health effects associated with exposure to the pollutant. For regulatory purposes, carcinogenic TACs are assumed to have no safe threshold below which health impacts would not occur, and cancer risk is expressed as excess cancer cases per one million exposed individuals. Noncarcinogenic TACs differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis. Carcinogenic TACs can also have noncarcinogenic health hazard levels.

There are many different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Additionally, diesel engines emit a complex mixture of air pollutants composed of gaseous and solid material. The solid emissions in diesel exhaust are known as diesel particulate matter (DPM). In 1998, California identified DPM as a TAC based on its potential to cause cancer, premature death, and other health problems (e.g., asthma attacks and other respiratory symptoms). Those most vulnerable are children, whose lungs are still developing, and the elderly, who may have other serious health problems. Overall, diesel engine emissions are responsible for the majority of California's known cancer risk from outdoor air pollutants. Diesel engines also contribute to California's fine particulate matter ($PM_{2.5}$) air quality problems. Public exposure to TACs can result from emissions from normal operations, as well as from accidental releases of hazardous materials during upset conditions. The health effects of TACs include cancer, birth defects, neurological damage, and death.

2.1.2.1 Diesel Exhaust

Most recently, CARB identified DPM as a TAC. DPM differs from other TACs in that it is not a single substance but rather a complex mixture of hundreds of substances. Diesel exhaust is a complex mixture of particles and gases produced when an engine burns diesel fuel. DPM is a concern because it causes lung cancer; many compounds found in diesel exhaust are carcinogenic. DPM includes the particle-phase constituents in diesel exhaust. The chemical composition and particle sizes of DPM vary between different engine types (i.e., heavy-duty, light-duty), engine operating conditions (i.e., idle, accelerate, decelerate), fuel formulations (i.e., high/low sulfur fuel), and the year of the manufacture of the engine (U.S. Environmental Protection Agency [USEPA] 2002). Some short-term (acute) effects of diesel exhaust include eye, nose, throat, and lung irritation, and diesel exhaust can cause coughs, headaches, light-headedness, and nausea. DPM poses the greatest health risk among the TACs; due to their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung. Project construction would be a source of DPM emissions.

2.1.2.2 Chloroform

Chloroform is a halogenated hydrocarbon with a chemical formula composed of one carbon atom bonded to three hydrogen atoms and one chlorine atom. It is a by-product of the chlorination process of municipal water and is commonly used to disinfect water and eliminate harmful microorganisms. When done properly and within regulated limits, chlorination is generally considered safe and effective for treating drinking water. Chloroform is classified as a VOC. VOCs have a high vapor pressure which means they can easily evaporate into the air under normal conditions, contributing to indoor and outdoor air pollution. The release of chloroform into the air can have environmental implications, contributing to air pollution and potentially impacting air quality and the health of those exposed. Exposure to chloroform vapor in the air can be harmful to human health when inhaled, depending on the concentration and duration of exposure. Short term exposure can result in irritation to the respiratory system, headaches and dizziness. Long term exposure, or exposure at high concentrations, can result in more serious health problems such as damage to the central nervous system, liver, and kidneys.

2.1.3 Sensitive Receptors

Sensitive receptors are defined as facilities or land uses that include members of the population who are particularly sensitive to the effects of air pollutants such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis.

The nearest sensitive receptor to the Project Site is the Edgewater Apartment Complex, accessible from California Avenue, approximately 800 feet southwest of the Project Site. It is noted that the Martin Luther King Junior High School is located west of the Edgewater Apartment Complex, approximately 1,280 feet from the Project Site.

2.2 Regulatory Framework

2.2.1 Federal

2.2.1.1 Clean Air Act

The Federal Clean Air Act (CAA) was amended in 1990 to address a large number of air pollutants that are known to cause or may reasonably be anticipated to cause adverse effects to human health or adverse environmental effects. 188 specific pollutants and chemical groups were initially identified as HAPs, and the list has been modified over time. The CAA Amendments included new regulatory programs to control acid deposition and for the issuance of stationary source operating permits.

In 2001, the USEPA issued its first Mobile Source Air Toxics Rule, which identified 21 mobile source air toxic (MSAT) compounds as being HAPs that required regulation. A subset of six of these MSAT compounds were identified as having the greatest influence on health and included benzene, 1,3-butadiene, formaldehyde, acrolein, acetaldehyde, and diesel particulate matter. More recently, the USEPA issued a second MSAT Rule in February 2007, which generally supported the findings in the first rule and provided additional recommendations of compounds having the greatest impact on health. The rule also identified several engine emission certification standards that must be implemented. Unlike the criteria pollutants, toxics do not have National Ambient Air Quality Standards (NAAQS) making evaluation of their impacts more subjective.

National Emissions Standards for Hazardous Air Pollutants (NESHAPs) were incorporated into a greatly expanded program for controlling toxic air pollutants. The provisions for attainment and maintenance of the NAAQS were substantially modified and expanded. Other revisions included provisions regarding stratospheric ozone protection, increased enforcement authority, and expanded research programs.

Section 112 of the CAA Amendments governs the federal control program for HAPs. NESHAPs are issued to limit the release of specified HAPs from specific industrial sectors. These standards are technology-based, meaning that they represent the best available control technology an industrial sector could afford. The level of emissions controls required by NESHAPs are not based on health risk considerations because allowable releases and resulting concentrations have not been determined to be safe for the general public. The CAA does not establish air quality standards for HAPs that define legally acceptable concentrations of these pollutants in ambient air.

2.2.2 State

2.2.2.1 California Clean Air Act

California Air Resources Board

CARB's statewide comprehensive air toxics program was established in 1983 with Assembly Bill (AB) 1807 the Toxic Air Contaminant Identification and Control Act (Tanner Air Toxics Act of 1983). AB 1807 created California's program to reduce exposure to air toxics and sets forth a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an airborne toxics control measure (ATCM) for sources that emit designated TACs. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate toxics best available control technology (T-BACT) to minimize emissions.

CARB also administers the state's mobile source emissions control program and oversees air quality programs established by state statute, such as AB 2588, the Air Toxics "Hot Spots" Information and Assessment Act of 1987. Under AB 2588, TAC emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High priority facilities are required to perform a health risk assessment and, if specific thresholds are exceeded, required to communicate the results to the public in the form of notices and public meetings. In September 1992, the "Hot Spots" Act was amended by Senate Bill (SB) 1731 which required facilities that pose a significant health risk to the community to reduce their risk through a risk management plan.

Truck and Bus Regulation Reducing Emissions from Existing Diesel Vehicles

On December 12, 2008, CARB approved the Truck and Bus Regulation to significantly reduce particulate matter (PM) and oxides of nitrogen emissions from existing diesel vehicles operating in California. The regulation requires diesel trucks and buses that operate in California to be upgraded to reduce emissions. Heavier trucks had to be retrofitted with PM filters beginning in January 1, 2012, and older trucks had to be replaced starting January 1, 2015. As of January 1, 2023, nearly all trucks and buses must be 2010 model year engines or equivalent.

The regulation applies to nearly all privately and federally owned diesel fueled trucks and buses and to privately and publicly owned school buses with a gross vehicle weight rating greater than 14,000 pounds. Small fleets with three or fewer diesel trucks can delay compliance for heavier trucks by reporting and there are a number of extensions for low-mileage construction trucks, early PM filter retrofits, adding cleaner vehicles, and other situations. Privately and publicly owned school buses have different requirements.

Tanner Air Toxics Act & Air Toxics "Hot Spot" Information and Assessment Act

CARB's Statewide comprehensive air toxics program was established in 1983 with AB 1807, the Toxic Air Contaminant Identification and Control Act (Tanner Air Toxics Act of 1983). AB 1807 created California's program to reduce exposure to air toxics and sets forth a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an ATCM for sources that emit designated TACs. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate T-BACT to minimize emissions.

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2.2.3 Local

2.2.3.1 Bay Area Air Quality Management District

The BAAQMD is designated by law to adopt and enforce regulations to achieve and maintain ambient air quality standards. The BAAQMD responsibilities include preparing plans for the attainment of ambient air quality standards, adopting and enforcing air pollution rules, issuing permits for and inspecting stationary air pollution sources, responding to citizen complaints, monitoring ambient air quality and meteorological conditions, and implementing state and federal programs and regulations. The BAAQMD has also adopted various rules and regulations that are designed to reduce and control pollutant emissions from construction and operational activities.

2.2.4 Threshold of Significance

The impact analysis provided below is based on the following local (BAAQMD) health risk thresholds. The BAAQMD has established the health risk thresholds to determine if the effects of nearby sources are significant to a proposed receptor.

Table 2-1. BAAQMD Health Risk Significance Thresholds

Air Pollutant/Risk Parameter	Value	Units
Ambient	0.3	$\mu g/m^3$
Cancer Risk	10	In One Million
Chronic Hazard Quotient	1	Health Hazard Index

Cancer risk is expressed in terms of expected incremental incidence per million population. This threshold serves to determine whether Project sources of TACs (e.g., construction) potentially have significant impacts on a receptor. The 10-in-one-million standard is a very health-protective significance threshold. A risk level of 10 in one million implies a likelihood that up to 10 persons out of one million equally exposed people would contract cancer if exposed continuously (24 hours per day) to the levels of TACs over a specified duration of time. This risk would be an excess cancer that is in addition to any cancer risk borne by a person not exposed to these air toxics. To put this risk in perspective, the risk of dying from accidental drowning is 1,000 in a million, which is 100 times more than the BAAQMD's threshold of 10 in one million.

The BAAQMD has also established non-carcinogenic risk parameters for use in HRAs. Noncarcinogenic risks are quantified by calculating a *hazard index*, expressed as the ratio between the ambient pollutant concentration and its toxicity or Reference Exposure Level (REL). An REL is a concentration at, or below which health effects are not likely to occur. A hazard index less of than one (1.0) means that adverse health effects are not expected. Within this analysis, non-carcinogenic exposures of less than 1.0 are considered less than significant. In addition, the BAAQMD has established a threshold for nearby sources' contribution to ambient $PM_{2.5}$ concentrations.

2.2.5 Methodology

An HRA was performed to determine the health risk associated with construction and operations of the Proposed Project. Project TAC concentrations and associated health risk associated with both construction off-road equipment and construction haul trucks during construction, as well as heavy-duty trucks for Project operations, were modeled using the HARP2 modeling program provided by CARB, with regulatory default settings, to perform the dispersion and health risk modeling for this analysis. HARP2 implements the latest regulatory guidance to develop inputs to the U.S. EPA AERMOD dispersion model for dispersion and as the inputs for calculations for the various health risk levels. AERMOD is a steady-state plume model that incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain. The resultant concentration values at vicinity sensitive receptors were then used to calculate chronic and carcinogenic health risk using the standardized equations contained in the OEHHA Guidance Manual for Preparation of Health Risk Assessments (2015). The HRA analyzed cancer and chronic non-cancer risk calculated for 70-year, 30-year, 25-year and 9-year exposure scenarios for operational emissions and 2 years for construction emissions. Per OEHHA guidance, the 25-year scenario was used to model the health risk for workers at business locations and the 70-, 30-, and 9-year scenarios were used for residents in residential areas. In addition, the maximum annual $PM_{2.5}$ concentration was modeled for comparison with BAAQMD thresholds.

2.2.5.1 Source Characteristics

Construction Toxic Air Contaminant Emission Sources

All onsite and offsite diesel truck traffic related emissions generated during construction beginning in the year 2024 were generated using EMFAC2021 and conservatively utilized throughout the proposed period of construction. Construction off-road equipment for onsite activities was modeled as nine-line volume sources placed along the permitter of the Project Site totaling 0.21 mile. Construction on-road equipment for offsite activities was modeled as forty-nine-line volume traveling the existing path of travel at the gas plant adjacent to the Project Site, west onto Loveridge Road, and heading towards the State Route 4 East and State Route 4 West onramps totaling 1.22 miles. Annual off-road PM_{10} exhaust emissions calculated using the CalEEMod model were used to represent emissions from onsite off-road diesel equipment used throughout construction. The annual emissions for all aspects of construction were used to conservatively estimate annual construction emissions for the estimated Project construction duration of approximately 2 years. $PM_{2.5}$ emissions were modeled as total onsite and offsite $PM_{2.5}$ emissions during the highest emission year as calculated by EMFAC2021 and CalEEMod. Detailed calculations for construction emissions can be found in Attachment B of this document.

Operational Toxic Air Contaminant Emission Sources

Project related onsite roadway sources were entered into AERMOD as nine-line volume sources placed along the permitter of the Project Site for a conservative analysis totaling 0.21 mile. Operational offsite roadway sources were entered into AERMOD as forty-nine -line volume traveling the existing path of travel at the existing gas plant adjacent to the Project Site, west onto Loveridge Road, and heading towards the State Route 4 East and State Route 4 West onramps totaling 1.22 miles. Daily truck trips were provided by the Project proponent, with the facility expected to receive 40 trucks per day. The number of truck trips was evenly distributed onto State Route 4 East and State Route 4 West.

Project related onsite stationary sources were entered into AERMOD to account for heavy-duty truck idling at the proposed fill area as well as the emissions from the proposed cooling tower. Onsite idling emissions were entered into AERMOD as three volume sources encompassing the proposed fill area. The cooling tower was accounted for through the placement of a point source in the proposed location with a release height of 17.5 meters. Chloroform was the chemical of concern associated with the cooling tower as it is a by-product of the chlorination process used to disinfect water. During the gas liquefaction process municipal water is used as a form of heat dissipation. Detailed calculations for operational emissions can be found in Attachment B of this document.

2.2.5.2 Dispersion Modeling

The air dispersion modeling for the HRA was performed using the USEPA AERMOD Version 11.0.1 dispersion model. AERMOD is a steady-state, multiple-source, Gaussian dispersion model designed for use with emission sources situated in terrain where ground elevations can exceed the stack heights of the emission sources. The USGS_NED_13_n38w123 file found at U.S. Geological Survey (USGS) was used for elevation data for all sources and receptors in the Project domain. All regulatory defaults were used for dispersion modeling.

AERMOD requires hourly meteorological data consisting of wind vector, wind speed, temperature, stability class, and mixing height. Pre-processed meteorological data files provided by BAAQMD using USEPA's AERMET program, designed to create AERMOD input files for the Concord-Buchanan Field Airport monitoring station, were selected as being the most representative meteorology based on proximity. The location of the monitoring station in respect to the Project Site is presented in Attachment A of this document. The unit emission rate of one gram per second was utilized in AERMOD to create plot files containing the dispersion factor (X/Q) for each source group. Emissions for each source group as described above were input into Hot Spots Analysis & Reporting Program (HARP2) to calculate the ground level concentrations (GLC) related to Project operations. AERMOD summary files, calculations and figures can be found in Attachment B.

Based on the OEHHA methodology, the residential inhalation cancer risk from the annual average TAC concentrations is calculated by multiplying the daily inhalation or oral dose, by a cancer potency factor, the age sensitivity factor (ASF), the frequency of time spent at home, and the exposure duration divided by averaging time, to yield the excess cancer risk. These factors are discussed in more detail below. Cancer risk must be separately calculated for specified age groups, because of age differences in sensitivity to carcinogens and age differences in intake rates (per kilogram [kg] body weight). Separate risk estimates for these age groups provide a health-protective estimate of cancer risk by accounting for greater susceptibility in early life, including both age-related sensitivity and amount of exposure.

Exposure through inhalation (Dose-air) is a function the breathing rate, the exposure frequency, and the concentration of a substance in the air. For residential exposure, the breathing rates are determined for specific age groups, so Dose-air is calculated for each of these age groups, 3rd trimester, 0<2, 2<9, 2<16, 16<30 and 16-70 years. To estimate cancer risk, the dose was estimated by applying the following formula to each ground-level concentration:

$$\mathbf{Dose_{-air} = (C_{air} * \{BR/BW\} * A * EF * 10^{-6})}$$

Where:

Dose-air	=	dose through inhalation (mg/kg/day)
C_{air}	=	air concentration (µg/m^3) from air dispersion model
{BR/BW}	=	daily breathing rate normalized to body weight (L/kg body weight – day) (361 L\kg BW-day for 3rd Trimester, 1,090 L/kg BW-day for 0<2 years, 861 L/kg BW-day for 2<9 years, 745 L/kg BW-day for 2<16 years, 335 L/kg BW-day for 16<30 years, and 290 L/kg BW-day 16<70 years)
A	=	Inhalation absorption factor (unitless [1])
EF	=	exposure frequency (unitless), days/365 days (0.96 [approximately 350 days per year])
10^{-6}	=	conversion factor (micrograms to milligrams, liters to cubic meters)

OEHHA developed ASFs to consider the increased sensitivity to carcinogens during early-in-life exposure. In the absence of chemical-specific data, OEHHA recommends a default ASF of 10 for the third trimester to age 2 years, an ASF of 3 for ages 2 through 15 years to account for potential increased sensitivity to carcinogens during childhood and an ASF of 1 for ages 16 through 70 years.

Fraction of time at home (FAH) during the day is used to adjust exposure duration and cancer risk from a specific facility's emissions, based on the assumption that exposure to Project construction emissions are not occurring away from home. OEHHA recommends the following FAH values: from the third trimester to age <2 years, 85 percent of time is spent at home; from age 2 through <16 years, 72 percent of time is spent at home; from age 16 years and greater, 73 percent of time is spent at home.

To estimate the cancer risk, the dose is multiplied by the cancer potency factor, the ASF, the exposure duration divided by averaging time, and the frequency of time spent at home (for residents only):

$$\mathbf{Risk_{inh\text{-}res} = (Dose_{air} * CPH * ASF * ED/AT * FAH)}$$

Where:

$Risk_{inh\text{-}res}$	=	residential inhalation cancer risk (potential chances per million)
$Dose_{air}$	=	daily dose through inhalation (mg/kg-day)
CPF	=	inhalation cancer potency factor (mg/kg-day^{-1})
ASF	=	age sensitivity factor for a specified age group (unitless)
ED	=	exposure duration (in years) for a specified age group (0.25 years for 3rd trimester, 2 years for 0<2, 7 years for 2<9, 14 years for 2<16, 14 years for 16<30, 54 years for 16-70)
AT	=	averaging time of lifetime cancer risk (years)

FAH = fraction of time spent at home (unitless)

Non-cancer chronic impacts are calculated by dividing the annual average concentration by the REL for that substance. The REL is defined as the concentration at which no adverse non-cancer health effects are anticipated. The following equation was used to determine the non-cancer risk:

Hazard Quotient = Ci/RELi

Where:

Ci = Concentration in the air of substance i (annual average concentration in $\mu g/m^3$)
RELi = Chronic noncancer REL for substance i ($\mu g/m^3$)

2.2.5.3 Cancer Risk

Operational cancer risk calculations for existing residential receptors are based on 70-, 30-, and 9-year exposure periods and worker receptors are based on a 25-year exposure period. The calculated cancer risk accounts for 350 days per year of exposure to residential worker receptors. While the average American spends 87 percent of their life indoors (USEPA 2001), neither the pollutant dispersion modeling nor the health risk calculations account for the reduced exposure structures provide. Instead, health risk calculations account for the equivalent exposure of continual outdoor living and working. The calculated carcinogenic risk at Project vicinity receptors is depicted in Table 2-2.

Table 2-2. Maximum Cancer Risk Summary	
Maximum Exposure Scenario	**Total Maximum Risk**
Project Operations	
70-Year Exposure Resident	1.49
30-Year Exposure Resident	1.31
9-Year Exposure Resident	0.93
25-Year Exposure Worker	0.25
Project Construction	
2-Year Exposure Resident	0.09
2-Year Exposure Worker	0.01
Significance Threshold	*10*
Exceed Threshold?	**No**

Source: See Attachment B.

As shown, the existing residents and workers would not experience a significant amount of cancer risk from construction of the Proposed Project.

The Maximumly Exposed Individual Resident for construction and operational emissions is the Edgewater Apartment Complex located southwest of the Project Site approximately 800 feet distant. The Maximumly Exposed Individual Worker for construction and operations is the Linde Welding Gas & Equipment Center located east of the Project Site on the adjacent parcel. The offsite Point of Maximum Impact is located on the Linde Welding Gas & Equipment Center property, east of the Project Site, adjacent to the main building. All of the above listed points were found to be the same for operation and construction scenarios and are presented in Attachment A of this document.

2.2.5.4 Non-Carcinogenic Hazards

In addition to cancer risk, the significance thresholds for TAC exposure require an evaluation of non-cancer risk stated in terms of a hazard index and incremental $PM_{2.5}$ concentration. Non-cancer chronic impacts are calculated by dividing the annual average concentration by the REL for that substance. The REL is defined as the concentration at which no adverse non-cancer health effects are anticipated. The potential for acute non-cancer hazards is evaluated by comparing the maximum short-term exposure level to an acute REL. RELs are designed to protect sensitive individuals within the population. The calculation of acute non-cancer impacts is similar to the procedure for chronic non-cancer impacts.

An acute or chronic hazard index of 1.0 is considered individually significant. The hazard index is calculated by dividing the acute or chronic exposure by the REL. The highest maximum chronic hazard indexes for residents and workers at the Proposed Project Site as a result of DPM from mobile sources is shown in Table

2-3. In addition, the BAAQMD has established a threshold for nearby sources' contribution to ambient $PM_{2.5}$ concentrations.

Table 2-3. Maximum Non-Cancer Risk Summary			
	Noncancer Risk		
Exposure Scenario	**Maximum Residential Hazard (Chronic Hazard Index)**	**Maximum Worker Hazard (Chronic Hazard Index)**	**$PM_{2.5}$ (ug/m3)**
Operations	0.0003	0.0013	0.006
Construction	0.0001	0.0002	0.002
Significance Threshold	*1*	*1*	*0.3*
Exceed Threshold?	**No**	**No**	**No**

Source: See Attachment B.

As shown in Table 2-3, impacts related to non-cancer risk (chronic hazard index) as a result of the Project Site would not surpass any significance thresholds.

3.0 REFERENCES

BAAQMD (Bay Area Air Quality Management District). 2022. California Environmental Quality Act Guidelines.

_____. 2020. Health Risk Assessment Modeling Protocol.

California Air Pollution Control Offices Association (CAPCOA). 2022. HARP Air Dispersion Modeling and Risk Tool 22118. https://ww2.arb.ca.gov/resources/documents/harp-air-dispersion-modeling-and-risk-tool

EMFAC. 2021. California Mobile Source Emission Factor model.

Office of Environmental Health Hazard Assessment (OEHHA). 2015. Guidance Manual for Preparation of Health Risk Assessments.

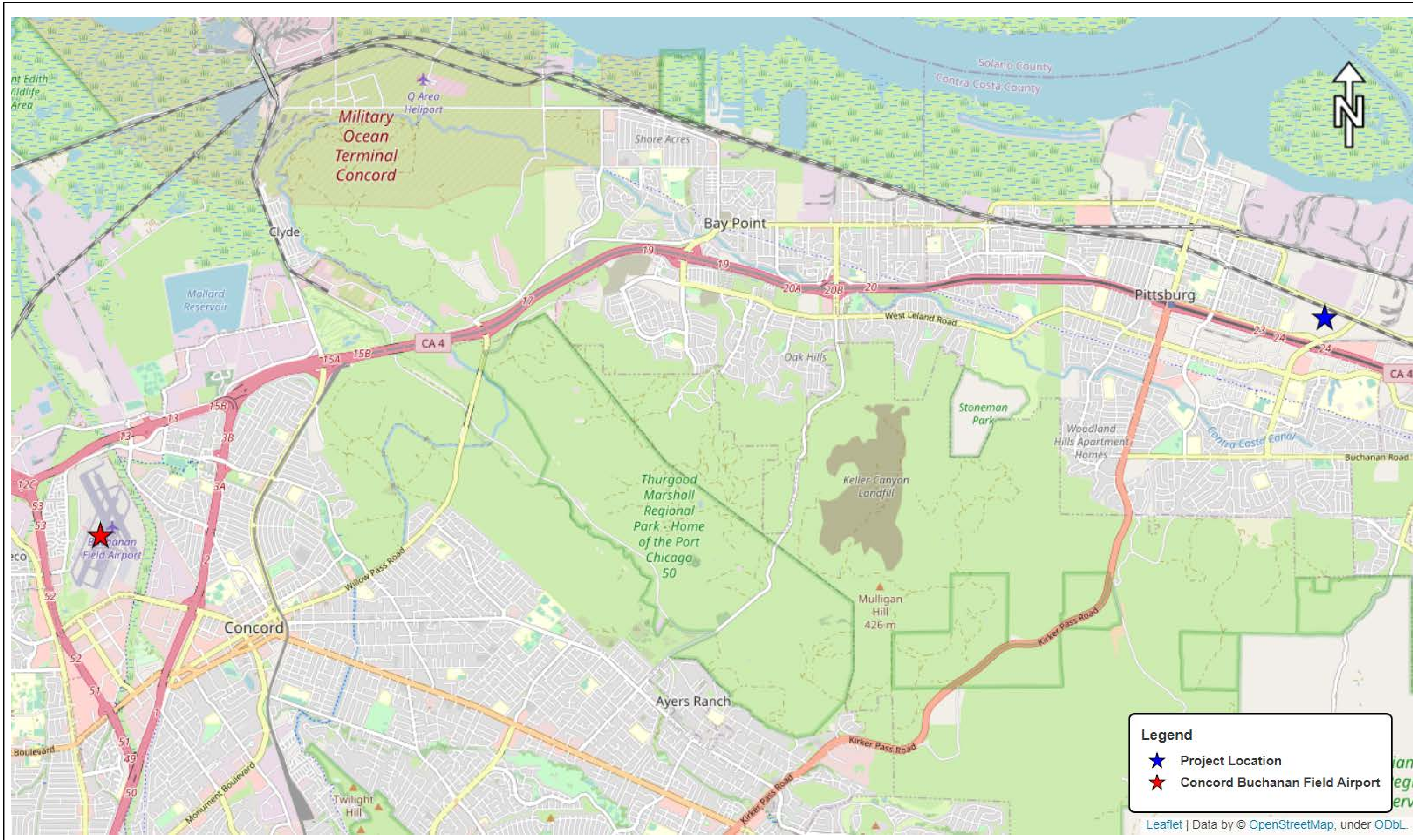
U.S. Environmental Protection Agency (USEPA). 2002. Health Assessment Document for Diesel Engine Exhaust. https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=300055PV.TXT.

_____. 2001. National Human Activity Pattern Survey.

LIST OF ATTACHMENTS

ATTACHMENT A

Health Risk Figures

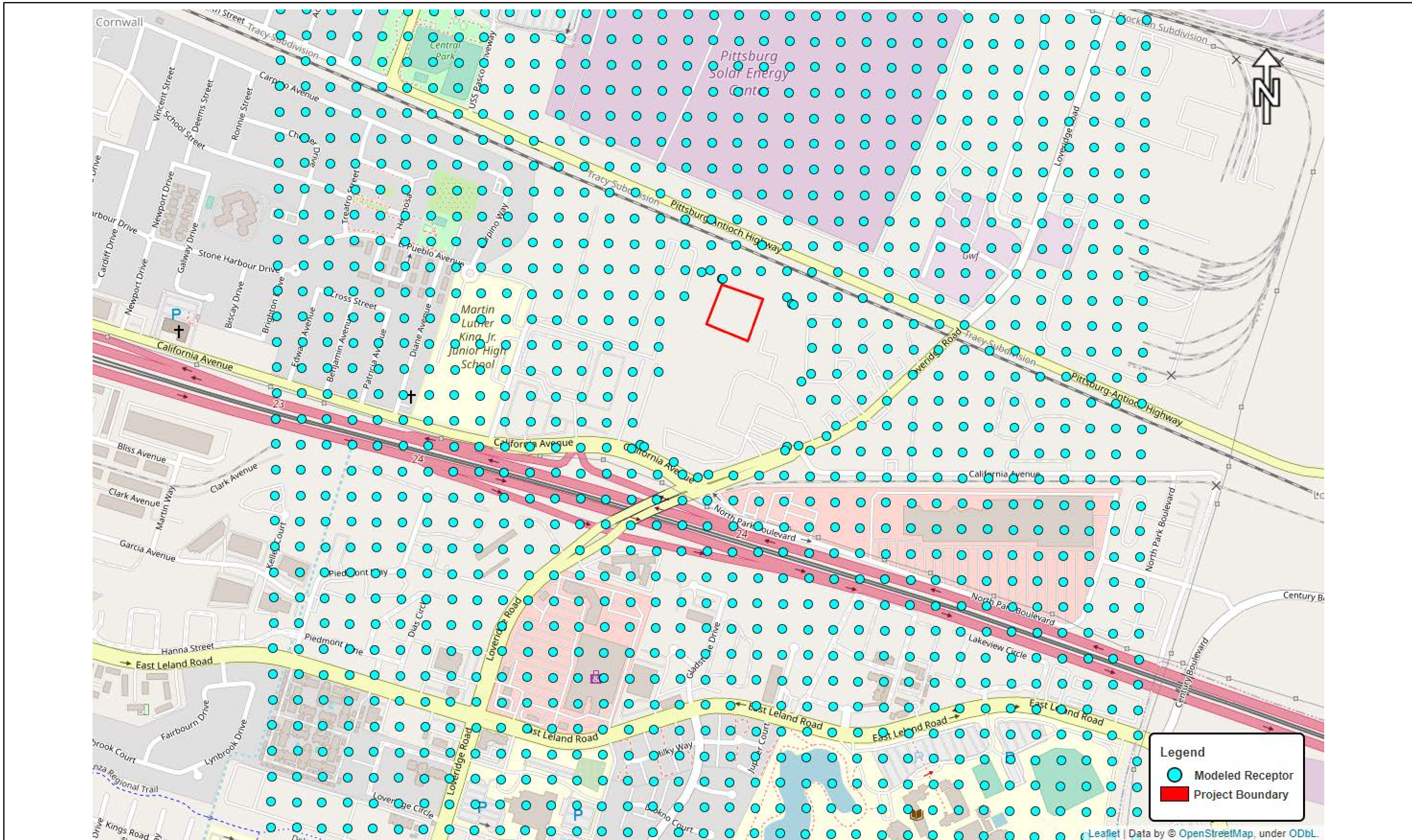


Map Date: 6/28/2023
Photo (or Base) Source: *HARP2*

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Figure A-1. Meteorological Data Monitoring Location

2022-039.07



Map Date: 6/28/2023
Photo (or Base) Source: *HARP2*

ECORP Consulting, Inc.
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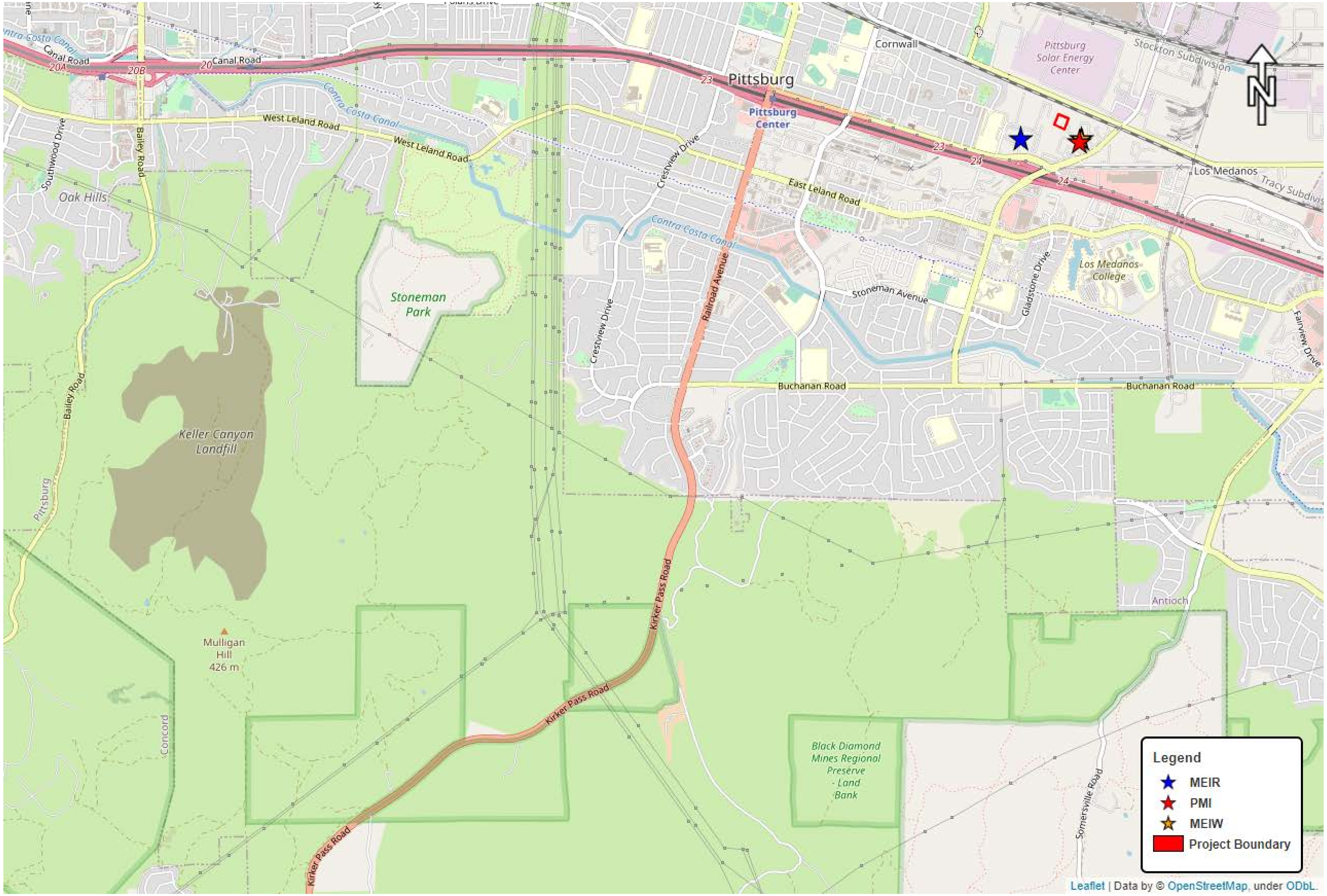
Figure A-2. Modeled Receptor Locations

2022-039.07



Map Date: 6/28/2023
Photo (or Base) Source: *HARP2*

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Figure A-3. Health Risk Categorical Maximum Locations

2022-039.07

ATTACHMENT B

Health Risk Analysis Output Files

CONSTRUCTION AERMOD DATA FILES

Control Pathway

AERMOD

Dispersion Options

Titles

C:\Users\agne\Desktop\Oakstone Construction\Oakstone Construction.is

Dispersion Options

- [x] Regulatory Default
- [ ] Non-Default Options

Dispersion Coefficient

Urban

Population:
Name (Optional):
Roughness Length:

Output Type

- [x] Concentration
- [ ] Total Deposition (Dry & Wet)
- [ ] Dry Deposition
- [ ] Wet Deposition

Plume Depletion

- [ ] Dry Removal
- [ ] Wet Removal

Output Warnings

- [ ] No Output Warnings
- [ ] Non-fatal Warnings for Non-sequential Met Data

Pollutant / Averaging Time / Terrain Options

Pollutant Type

Averaging Time Options

Hours

1	2	3	4	6	8	12	24
[x]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[x]

- [ ] Month
- [ ] Period
- [x] Annual

Exponential Decay

Half Life of 4 hrs / Option not available will be used

Terrain Height Options

- [ ] Flat
- [x] Elevated

SO: Meters
RE: Meters
TG: Meters

Flagpole Receptors

- [ ] Yes
- [x] No

Default Height = 0.00 m

Control Pathway

Optional Files

- [ ] Re-Start File
- [ ] Init File
- [ ] Multi-Year Analyses
- [ ] Event Input File
- [x] Error Listing File

Detailed Error Listing File

Filename: Oakstone Construction.err

Source Pathway - Source Inputs

Source Pathway - Source Inputs

AERMOD

Line Volume Sources

Source Type: LINE VOLUME

Source: SLINE1 (Construction Equipment)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
22.15	1.00000		599598.12	4208180.96	11.48	0.00
			599678.16	4208153.55	11.18	0.00
			599648.75	4208069.92	12.29	0.00
			599569.17	4208102.68	12.34	0.00
			599597.86	4208180.45	11.48	0.00

Source Type: LINE VOLUME

Source: SLINE2 (Project Site to Loveridge)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
22.15	1.00000		599657.16	4208095.61	11.48	0.00
			599683.81	4208088.95	11.92	0.00
			599673.82	4208050.63	12.24	0.00
			599704.36	4208042.85	11.87	0.00
			599706.03	4208041.74	11.87	0.00
			599691.59	4207992.32	12.50	0.00
			599709.92	4207985.10	12.55	0.00
			599720.47	4207975.10	12.57	0.00
			599736.57	4207956.77	12.64	0.00
			599746.01	4207934.56	12.73	0.00
			599752.12	4207917.90	12.57	0.00
			599761.01	4207915.12	12.97	0.00
			599780.44	4207876.80	13.93	0.00

Source Pathway - Source Inputs

AERMOD

Source Type: LINE VOLUME
Source: SLINE3 (Loveridge to Califorania)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
22.15	1.00000		599780.73	4207874.82	13.92	0.00
			599780.73	4207871.04	13.90	0.00
			599761.38	4207863.02	14.04	0.00
			599742.50	4207858.29	14.21	0.00
			599720.78	4207854.99	14.45	0.00
			599560.75	4207796.93	16.96	0.00
			599552.26	4207794.57	17.15	0.00
			599473.42	4207838.47	16.91	0.00
			599422.91	4207858.77	16.43	0.00
			599344.55	4207871.51	17.06	0.00
			599318.59	4207870.10	17.24	0.00

Source Type: LINE VOLUME
Source: SLINE4 (Califorania to 4 West)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
22.15	1.00000		599317.17	4207868.68	17.18	0.00
			599316.70	4207854.99	17.03	0.00
			599289.32	4207827.14	15.36	0.00
			599277.52	4207823.83	15.19	0.00
			599013.64	4207874.82	19.47	0.00
			598989.56	4207878.59	19.67	0.00
			598982.01	4207876.23	19.76	0.00
			598962.18	4207878.12	19.94	0.00
			598916.87	4207889.92	20.11	0.00

Source Pathway - Source Inputs

AERMOD

Source Type: LINE VOLUME
Source: SLINE5 (Loveridge/CA Intersection to 4 East)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
22.15	1.00000		599550.62	4207795.21	17.22	0.00
			599395.43	4207722.90	17.09	0.00
			599362.69	4207702.44	18.80	0.00
			599405.66	4207687.77	18.27	0.00
			599498.78	4207666.97	15.83	0.00
			599603.83	4207645.48	14.80	0.00
			599655.67	4207636.61	15.36	0.00
			599705.13	4207626.72	15.08	0.00
			599736.16	4207619.56	16.16	0.00
			599801.99	4207603.87	16.64	0.00
			599830.30	4207596.37	17.03	0.00
			599860.31	4207589.20	17.56	0.00
			599872.25	4207589.89	18.26	0.00

Source Pathway - Source Inputs

AERMOD

Volume Sources Generated from Line Sources

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE1	L0000001	599608.60	4208177.37	10.92	0.00	0.11111	22.15		18.61	2.37
	L0000002	599646.45	4208164.41	11.14	0.00	0.11111	22.15		18.61	2.37
	L0000003	599676.01	4208147.43	11.44	0.00	0.11111	22.15		18.61	2.37
	L0000004	599662.74	4208109.69	12.01	0.00	0.11111	22.15		18.61	2.37
	L0000005	599649.46	4208071.95	12.27	0.00	0.11111	22.15		18.61	2.37
	L0000006	599613.74	4208084.33	12.46	0.00	0.11111	22.15		18.61	2.37
	L0000007	599576.75	4208099.56	12.48	0.00	0.11111	22.15		18.61	2.37
	L0000008	599580.18	4208132.53	11.50	0.00	0.11111	22.15		18.61	2.37
	L0000009	599594.03	4208170.06	11.18	0.00	0.11111	22.15		18.61	2.37

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE2	L0011844	599667.90	4208092.93	11.66	0.00	0.12500	22.15		18.79	2.37
	L0011845	599677.76	4208065.74	12.08	0.00	0.12500	22.15		18.79	2.37
	L0011846	599697.83	4208044.52	11.92	0.00	0.12500	22.15		18.79	2.37
	L0011847	599697.15	4208011.37	12.11	0.00	0.12500	22.15		18.79	2.37
	L0011848	599710.53	4207984.52	12.51	0.00	0.12500	22.15		18.79	2.37
	L0011849	599737.47	4207954.65	12.66	0.00	0.12500	22.15		18.79	2.37
	L0011850	599752.90	4207917.66	12.30	0.00	0.12500	22.15		18.79	2.37
	L0011851	599775.43	4207886.68	13.74	0.00	0.12500	22.15		18.79	2.37

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE3	L0011852	599773.99	4207868.25	13.96	0.00	0.08333	22.15		20.01	2.37
	L0011853	599732.71	4207856.81	14.37	0.00	0.08333	22.15		20.01	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE3	L0011854	599691.70	4207844.44	14.74	0.00	0.08333	22.15		20.01	2.37
	L0011855	599651.26	4207829.77	15.08	0.00	0.08333	22.15		20.01	2.37
	L0011856	599610.83	4207815.10	15.75	0.00	0.08333	22.15		20.01	2.37
	L0011857	599570.40	4207800.43	16.73	0.00	0.08333	22.15		20.01	2.37
	L0011858	599531.35	4207806.21	17.51	0.00	0.08333	22.15		20.01	2.37
	L0011859	599493.77	4207827.14	17.30	0.00	0.08333	22.15		20.01	2.37
	L0011860	599455.12	4207845.82	16.72	0.00	0.08333	22.15		20.01	2.37
	L0011861	599414.73	4207860.10	16.54	0.00	0.08333	22.15		20.01	2.37
	L0011862	599372.27	4207867.00	16.65	0.00	0.08333	22.15		20.01	2.37
	L0011863	599329.65	4207870.70	17.14	0.00	0.08333	22.15		20.01	2.37

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE4	L0011864	599316.79	4207857.61	17.13	0.00	0.09091	22.15		19.10	2.37
	L0011865	599289.75	4207827.58	16.23	0.00	0.09091	22.15		19.10	2.37
	L0011866	599249.84	4207829.18	15.98	0.00	0.09091	22.15		19.10	2.37
	L0011867	599209.52	4207836.97	16.48	0.00	0.09091	22.15		19.10	2.37
	L0011868	599169.20	4207844.76	17.21	0.00	0.09091	22.15		19.10	2.37
	L0011869	599128.88	4207852.55	17.98	0.00	0.09091	22.15		19.10	2.37
	L0011870	599088.56	4207860.34	18.63	0.00	0.09091	22.15		19.10	2.37
	L0011871	599048.24	4207868.13	19.14	0.00	0.09091	22.15		19.10	2.37
	L0011872	599007.89	4207875.72	19.53	0.00	0.09091	22.15		19.10	2.37
	L0011873	598967.47	4207877.62	19.91	0.00	0.09091	22.15		19.10	2.37
	L0011874	598927.58	4207887.13	20.04	0.00	0.09091	22.15		19.10	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE5	L0011875	599540.58	4207790.53	17.48	0.00	0.05556	22.15		19.44	2.37
	L0011876	599502.70	4207772.89	13.36	0.00	0.05556	22.15		19.44	2.37
	L0011877	599464.83	4207755.24	11.18	0.00	0.05556	22.15		19.44	2.37
	L0011878	599426.95	4207737.59	11.06	0.00	0.05556	22.15		19.44	2.37
	L0011879	599389.48	4207719.19	18.74	0.00	0.05556	22.15		19.44	2.37
	L0011880	599372.33	4207699.15	18.64	0.00	0.05556	22.15		19.44	2.37
	L0011881	599412.07	4207686.34	17.97	0.00	0.05556	22.15		19.44	2.37
	L0011882	599452.85	4207677.23	16.87	0.00	0.05556	22.15		19.44	2.37
	L0011883	599493.63	4207668.12	16.09	0.00	0.05556	22.15		19.44	2.37
	L0011884	599534.55	4207659.65	15.40	0.00	0.05556	22.15		19.44	2.37
	L0011885	599575.49	4207651.28	15.18	0.00	0.05556	22.15		19.44	2.37
	L0011886	599616.51	4207643.31	14.87	0.00	0.05556	22.15		19.44	2.37
	L0011887	599657.68	4207636.21	14.59	0.00	0.05556	22.15		19.44	2.37
	L0011888	599698.66	4207628.02	15.32	0.00	0.05556	22.15		19.44	2.37
	L0011889	599739.41	4207618.79	15.84	0.00	0.05556	22.15		19.44	2.37
	L0011890	599780.06	4207609.10	16.48	0.00	0.05556	22.15		19.44	2.37
	L0011891	599820.59	4207598.94	17.05	0.00	0.05556	22.15		19.44	2.37
	L0011892	599861.19	4207589.25	17.84	0.00	0.05556	22.15		19.44	2.37

Source Pathway

AERMOD

Building Downwash Information

Option not in use

Emission Rate Units for Output

For Concentration

Unit Factor:	1E6
Emission Unit Label:	GRAMS/SEC
Concentration Unit Label:	MICROGRAMS/M**3

Source Groups

Source Group ID	List of Sources in Group (Source Range or Single Sources)
SLINE5	SLINE5
SLINE4	SLINE4
SLINE3	SLINE3
SLINE2	SLINE2
SLINE1	SLINE1
ALL	All Sources Included

Receptor Pathway

AERMOD

Receptor Networks

Note: Terrain Elavations and Flagpole Heights for Network Grids are in Page RE2 - 1 (If applicable)
Generated Discrete Receptors for Multi-Tier (Risk) Grid and Receptor Locations for Fenceline Grid are in Page RE3 - 1 (If applicable)

Uniform Cartesian Grid

Receptor Network ID	Grid Origin X Coordinate [m]	Grid Origin Y Coordinate [m]	No. of X-Axis Receptors	No. of Y-Axis Receptors	Spacing for X-Axis [m]	Spacing for Y-Axis [m]
UCART1	598725.09	4207057.72	35	35	50.00	50.00

Discrete Receptors

Plant Boundary Receptors

Cartesian Plant Boundary

Primary

Record Number	X-Coordinate [m]	Y-Coordinate [m]	Group Name (Optional)	Terrain Elevations	Flagpole Heights [m] (Optional)
1	599596.97	4208192.41	FENCEPRI	11.42	
2	599734.86	4208144.70	FENCEPRI	10.80	
3	599740.09	4208142.74	FENCEPRI	10.47	
4	599755.12	4207992.43	FENCEPRI	12.03	
5	599806.75	4207885.90	FENCEPRI	13.65	
6	599752.51	4207866.30	FENCEPRI	14.17	
7	599729.64	4207864.99	FENCEPRI	14.13	
8	599554.49	4207802.25	FENCEPRI	17.13	
9	599508.09	4207831.66	FENCEPRI	17.61	
10	599448.62	4207861.72	FENCEPRI	16.95	
11	599440.77	4207864.99	FENCEPRI	16.86	
12	599557.10	4208204.82	FENCEPRI	11.35	
13	599599.58	4208191.10	FENCEPRI	11.10	

Receptor Groups

Record Number	Group ID	Group Description
1	FENCEPRI	Cartesian plant boundary Primary Receptors
2	UCART1	Receptors generated from Uniform Cartesian Grid

Meteorology Pathway

AERMOD

Met Input Data

Surface Met Data

Filename: W:\Projects\2022\2022-039.07 Project Oakstone NorCal Expansion Project\HRA\AERMOD\Concord-Buchana

Format Type: Default AERMET format

Profile Met Data

Filename: W:\Projects\2022\2022-039.07 Project Oakstone NorCal Expansion Project\HRA\AERMOD\Concord-Buchana

Format Type: Default AERMET format

Wind Speed

☐ Wind Speeds are Vector Mean (Not Scalar Means)

Wind Direction

Rotation Adjustment [deg]:

Potential Temperature Profile

Base Elevation above MSL (for Primary Met Tower): 5.50 [m]

Meteorological Station Data

Stations	Station No.	Year	X Coordinate [m]	Y Coordinate [m]	Station Name
Surface		2017			Concord-Buchanan Field
Upper Air		2017			OAKLAND/WSO AP

Data Period

Data Period to Process

Start Date: 1/1/2017 Start Hour: 1 End Date: 1/1/2018 End Hour: 24

Wind Speed Categories

Stability Category	Wind Speed [m/s]	Stability Category	Wind Speed [m/s]
A	1.54	D	8.23
B	3.09	E	10.8
C	5.14	F	No Upper Bound

CONSTRUCTION EMISSION CALCULATIONS

HARP2 Emissions Inputs
Oakstone NorCal Expansion Project

Table 1. Modeled Roadway Dimensions

Roadway Link Description	AERMOD ID	Length (miles)	Width (m)	Area (m^2)
Project Site to Loveridge Road	SLINE2	0.2	3.7	1,128.13
Loveridge Road to California Aveue	SLINE3	0.3	7.4	3,665.21
California Avenue to SR 4 West	SLINE4	0.3	7.4	3,202.71
Loveridge Road/ California Avenue Intersection to SR 4 East	SLINE5	0.5	7.4	5,420.49

Notes: (1)All roadways, except that on the Project Site, modeled as two lanes with standard 3.7 meter width per lane.

Table 2. Total Haul and Vendor Trip Information

	Trips/Day
Vendor & Hauling Heavy Duty Trucks (Grading)	28

Note: (1) Daily trips provided by RCH Group (2023).

Trips taken from project site preparation phase, the phase with the highest truck trips.

Table 3. Modeled Roadway Trip Information

Roadway Link	Truck Trips		
	Percentage Total Trips	Hourly	Average Daily
Project Site to Loveridge Road	100%	3.5	28
Loveridge Road to California Aveue	100%	3.5	28
California Avenue to SR 4 West	50%	1.8	14
Loveridge Road/ California Avenue Intersection to SR 4 East	50%	1.8	14

Notes: (1)Trips onto SR 4 West and SR 4 East distributed equally

Table 4. Onroad DPM Emission Rates

Vehicle Type	DPM Emission Rates[1] (g/mi)					
	Idle[2]	5 mph	15 mph	45 mph	Onsite Composite[4]	Offsite Composite[5]
HHDT	0.279	0.091	0.061	0.156	0.070	0.138
MHDT	0.809	0.101	0.069	0.025	0.087	0.043
Station Customer Composite[3]	0.544	0.096	0.065	0.090	0.079	0.091

Notes: (1) DPM Emission Rates conservativly represented using EMFAC2021 PM10 Exhaust emission factors averaged for 2024

(2) Idle emission rates in grams per minute.

(3) Vender diesel vehicle fleet mix estimated at 50% HHDT 50% MHDT

(4) Onsite Composite factor is 85% @ 15 mph + 15% @ 5 mph + 1 minute idle per mile

(5) Offsite Composite factor is 80% @ 45 mph + 10% @ 15 mph + 10% @ 5 mph + .1 minute idle per mile

Table 5. Modeled Roadway Emission Rates

Roadway Link	DPM Emissions[1,2]	
	Peak Hourly (lbs/hr)	Annual (lbs/yr)
Project Site to Loveridge Road	0.0001	0.2301
Loveridge Road to California Aveue	0.0002	0.3738
California Avenue to SR 4 West	0.0001	0.1633
Loveridge Road/ California Avenue Intersection to SR 4 East	0.0001	0.2764

Notes: (1) Peak Hourly Emissions = DPM Emission Rate (g/mi) * Peak Hourly Trips * Link Length (mi) / 453.6 (g/lb)

(2) Annual Emissions = DPM Emission Rate (g/mi) * Daily Trips * Link Length (mi) * 365 (days/yr) / 453.6 (g/lb)

HARP2 Emissions Inputs
Oakstone NorCal Expansion Project

Table 6. Construction Phase Information

Phase Name	Start Date	End Date
Site Preparation	2/5/2024	4/11/2024
Grading	4/12/2024	5/16/2024
Utilities	5/17/2024	7/18/2024
Paving	7/19/2024	8/8/2024
Equipment Installation	8/9/2024	3/13/2025

Source: CalEEMod - Annual Consite Construction

Table 7. Construction Offroad Equipment List

Phase Name	Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8	247	0.4
Site Preparation	Tractors/Loaders/Backhoes	4	8	84	0.37
Grading	Excavators	1	8	36	0.38
Grading	Graders	1	8	148	0.41
Grading	Rubber Tired Dozers	1	8	367	0.4
Grading	Tractors/Loaders/Backhoes	3	8	84	0.37
Utilities	Tractors/Loaders/Backhoes	1	8	84	0.37
Utilities	Trenchers	1	7	40	0.5
Utilities	Rubber Tired Dozers	1	8	367	0.4
Utilities	Forklifts	2	7	82	0.2
Paving	Pavers	2	8	81	0.42
Paving	Paving Equipment	2	6	89	0.36
Paving	Rollers	2	6	36	0.38
Paving	Tractors/Loaders/Backhoes	1	8	84	0.37
Equipment Installation	Cranes	2	7	367	0.29
Equipment Installation	Forklifts	3	8	82	0.2
Equipment Installation	Generator Sets	1	8	14	0.74
Equipment Installation	oes	3	7	84	0.37
Equipment Installation	Welders	1	8	46	0.45

Source: CalEEMod - Annual Onsite Construction

HARP2 Emissions Inputs
Oakstone NorCal Expansion Project

8. Annual Onsite Offroad DPM Exhaust Construction Emissions by Phase

	Emissions (tons/yr)		Total
Phase	**2024**	**2025**	**(tons)**
Site Preparation	0.9500	0.0000	0.9500
Grading	0.6000	0.0000	0.6
Utilities	0.0200	0.0000	0.02
Paving	0.0050	0.0000	0.005
Equipment Installation	0.0800	0.0200	0.1
Annual DPM Emissions	**1.6550**	**0.0200**	1.675

Source: CalEEMod - Annual Onsite Construction

Note: Emissions modleing done for two years of construction

OPERATIONAL AERMOD DATA FILES

Control Pathway

AERMOD

Dispersion Options

Titles

C:\Users\agne\Desktop\Oakstone Construction\Oakstone Construction.is

Dispersion Options

- [x] Regulatory Default
- [ ] Non-Default Options

Dispersion Coefficient

Urban

Population:
Name (Optional):
Roughness Length:

Output Type

- [x] Concentration
- [ ] Total Deposition (Dry & Wet)
- [ ] Dry Deposition
- [ ] Wet Deposition

Plume Depletion

- [ ] Dry Removal
- [ ] Wet Removal

Output Warnings

- [ ] No Output Warnings
- [ ] Non-fatal Warnings for Non-sequential Met Data

Pollutant / Averaging Time / Terrain Options

Pollutant Type

Averaging Time Options

Hours

1	2	3	4	6	8	12	24
[x]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[x]

- [ ] Month
- [ ] Period
- [x] Annual

Flagpole Receptors

- [ ] Yes
- [x] No

Default Height = 0.00 m

Exponential Decay

Half Life of 4 hrs will be used
Option not available

Terrain Height Options

- [ ] Flat
- [x] Elevated

SO: Meters
RE: Meters
TG: Meters

Control Pathway

Optional Files

- [ ] Re-Start File
- [ ] Init File
- [ ] Multi-Year Analyses
- [ ] Event Input File
- [x] Error Listing File

Detailed Error Listing File

Filename: Oakstone Construction.err

Source Pathway - Source Inputs

AERMOD

Point Sources

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Gas Exit Temp. [K]	Gas Exit Velocity [m/s]	Stack Inside Diameter [m]
POINT	STCK1	599636.88 Cooling Tower 1	4208081.35	12.19	17.40	0.12600	308.00	11.30	9.50
POINT	STCK2	599641.25 Cooling Tower 2	4208079.79	12.13	17.40	0.12600	308.00	11.30	9.50

Volume Sources

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL1	599588.25 HDT Idle 1	4208138.58	11.30	3.00	0.12600	49.47	Surface-Based	11.50	4.20
VOLUME	VOL2	599594.53 HDT Idle 2	4208137.73	11.31	3.00	0.12600	49.47	Surface-Based	11.50	4.20
VOLUME	VOL3	599600.04 HDT Idle 3	4208135.98	11.35	3.00	0.12600	49.47	Surface-Based	11.50	4.20

Source Pathway - Source Inputs

AERMOD

Line Volume Sources

Source Type: LINE VOLUME

Source: SLINE1 (Internal Circulation)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
22.15	1.00000		599598.12	4208180.96	11.48	0.00
			599678.16	4208153.55	11.18	0.00
			599648.75	4208069.92	12.29	0.00
			599569.17	4208102.68	12.34	0.00
			599597.86	4208180.45	11.48	0.00

Source Type: LINE VOLUME

Source: SLINE2 (Project Site to Loveridge)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
22.15	1.00000		599657.16	4208095.61	11.48	0.00
			599683.81	4208088.95	11.92	0.00
			599673.82	4208050.63	12.24	0.00
			599704.36	4208042.85	11.87	0.00
			599706.03	4208041.74	11.87	0.00
			599691.59	4207992.32	12.50	0.00
			599709.92	4207985.10	12.55	0.00
			599720.47	4207975.10	12.57	0.00
			599736.57	4207956.77	12.64	0.00
			599746.01	4207934.56	12.73	0.00
			599752.12	4207917.90	12.57	0.00
			599761.01	4207915.12	12.97	0.00
			599780.44	4207876.80	13.93	0.00

Source Pathway - Source Inputs

AERMOD

Source Type: LINE VOLUME
Source: SLINE3 (Loveridge to Califorania)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
22.15	1.00000		599780.73	4207874.82	13.92	0.00
			599780.73	4207871.04	13.90	0.00
			599761.38	4207863.02	14.04	0.00
			599742.50	4207858.29	14.21	0.00
			599720.78	4207854.99	14.45	0.00
			599560.75	4207796.93	16.96	0.00
			599552.26	4207794.57	17.15	0.00
			599473.42	4207838.47	16.91	0.00
			599422.91	4207858.77	16.43	0.00
			599344.55	4207871.51	17.06	0.00
			599318.59	4207870.10	17.24	0.00

Source Type: LINE VOLUME
Source: SLINE4 (Califorania to 4 West)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
22.15	1.00000		599317.17	4207868.68	17.18	0.00
			599316.70	4207854.99	17.03	0.00
			599289.32	4207827.14	15.36	0.00
			599277.52	4207823.83	15.19	0.00
			599013.64	4207874.82	19.47	0.00
			598989.56	4207878.59	19.67	0.00
			598982.01	4207876.23	19.76	0.00
			598962.18	4207878.12	19.94	0.00
			598916.87	4207889.92	20.11	0.00

Source Pathway - Source Inputs

AERMOD

Source Type: LINE VOLUME
Source: SLINE5 (Loveridge/CA Intersection to 4 East)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
22.15	1.00000		599550.62	4207795.21	17.22	0.00
			599395.43	4207722.90	17.09	0.00
			599362.69	4207702.44	18.80	0.00
			599405.66	4207687.77	18.27	0.00
			599498.78	4207666.97	15.83	0.00
			599603.83	4207645.48	14.80	0.00
			599655.67	4207636.61	15.36	0.00
			599705.13	4207626.72	15.08	0.00
			599736.16	4207619.56	16.16	0.00
			599801.99	4207603.87	16.64	0.00
			599830.30	4207596.37	17.03	0.00
			599860.31	4207589.20	17.56	0.00
			599872.25	4207589.89	18.26	0.00

Source Pathway - Source Inputs

AERMOD

Volume Sources Generated from Line Sources

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE1	L0000001	599608.60	4208177.37	10.92	0.00	0.11111	22.15		18.61	2.37
	L0000002	599646.45	4208164.41	11.14	0.00	0.11111	22.15		18.61	2.37
	L0000003	599676.01	4208147.43	11.44	0.00	0.11111	22.15		18.61	2.37
	L0000004	599662.74	4208109.69	12.01	0.00	0.11111	22.15		18.61	2.37
	L0000005	599649.46	4208071.95	12.27	0.00	0.11111	22.15		18.61	2.37
	L0000006	599613.74	4208084.33	12.46	0.00	0.11111	22.15		18.61	2.37
	L0000007	599576.75	4208099.56	12.48	0.00	0.11111	22.15		18.61	2.37
	L0000008	599580.18	4208132.53	11.50	0.00	0.11111	22.15		18.61	2.37
	L0000009	599594.03	4208170.06	11.18	0.00	0.11111	22.15		18.61	2.37

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE2	L0011844	599667.90	4208092.93	11.66	0.00	0.12500	22.15		18.79	2.37
	L0011845	599677.76	4208065.74	12.08	0.00	0.12500	22.15		18.79	2.37
	L0011846	599697.83	4208044.52	11.92	0.00	0.12500	22.15		18.79	2.37
	L0011847	599697.15	4208011.37	12.11	0.00	0.12500	22.15		18.79	2.37
	L0011848	599710.53	4207984.52	12.51	0.00	0.12500	22.15		18.79	2.37
	L0011849	599737.47	4207954.65	12.66	0.00	0.12500	22.15		18.79	2.37
	L0011850	599752.90	4207917.66	12.30	0.00	0.12500	22.15		18.79	2.37
	L0011851	599775.43	4207886.68	13.74	0.00	0.12500	22.15		18.79	2.37

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE3	L0011852	599773.99	4207868.25	13.96	0.00	0.08333	22.15		20.01	2.37
	L0011853	599732.71	4207856.81	14.37	0.00	0.08333	22.15		20.01	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE3	L0011854	599691.70	4207844.44	14.74	0.00	0.08333	22.15		20.01	2.37
	L0011855	599651.26	4207829.77	15.08	0.00	0.08333	22.15		20.01	2.37
	L0011856	599610.83	4207815.10	15.75	0.00	0.08333	22.15		20.01	2.37
	L0011857	599570.40	4207800.43	16.73	0.00	0.08333	22.15		20.01	2.37
	L0011858	599531.35	4207806.21	17.51	0.00	0.08333	22.15		20.01	2.37
	L0011859	599493.77	4207827.14	17.30	0.00	0.08333	22.15		20.01	2.37
	L0011860	599455.12	4207845.82	16.72	0.00	0.08333	22.15		20.01	2.37
	L0011861	599414.73	4207860.10	16.54	0.00	0.08333	22.15		20.01	2.37
	L0011862	599372.27	4207867.00	16.65	0.00	0.08333	22.15		20.01	2.37
	L0011863	599329.65	4207870.70	17.14	0.00	0.08333	22.15		20.01	2.37

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE4	L0011864	599316.79	4207857.61	17.13	0.00	0.09091	22.15		19.10	2.37
	L0011865	599289.75	4207827.58	16.23	0.00	0.09091	22.15		19.10	2.37
	L0011866	599249.84	4207829.18	15.98	0.00	0.09091	22.15		19.10	2.37
	L0011867	599209.52	4207836.97	16.48	0.00	0.09091	22.15		19.10	2.37
	L0011868	599169.20	4207844.76	17.21	0.00	0.09091	22.15		19.10	2.37
	L0011869	599128.88	4207852.55	17.98	0.00	0.09091	22.15		19.10	2.37
	L0011870	599088.56	4207860.34	18.63	0.00	0.09091	22.15		19.10	2.37
	L0011871	599048.24	4207868.13	19.14	0.00	0.09091	22.15		19.10	2.37
	L0011872	599007.89	4207875.72	19.53	0.00	0.09091	22.15		19.10	2.37
	L0011873	598967.47	4207877.62	19.91	0.00	0.09091	22.15		19.10	2.37
	L0011874	598927.58	4207887.13	20.04	0.00	0.09091	22.15		19.10	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE5	L0011875	599540.58	4207790.53	17.48	0.00	0.05556	22.15		19.44	2.37
	L0011876	599502.70	4207772.89	13.36	0.00	0.05556	22.15		19.44	2.37
	L0011877	599464.83	4207755.24	11.18	0.00	0.05556	22.15		19.44	2.37
	L0011878	599426.95	4207737.59	11.06	0.00	0.05556	22.15		19.44	2.37
	L0011879	599389.48	4207719.19	18.74	0.00	0.05556	22.15		19.44	2.37
	L0011880	599372.33	4207699.15	18.64	0.00	0.05556	22.15		19.44	2.37
	L0011881	599412.07	4207686.34	17.97	0.00	0.05556	22.15		19.44	2.37
	L0011882	599452.85	4207677.23	16.87	0.00	0.05556	22.15		19.44	2.37
	L0011883	599493.63	4207668.12	16.09	0.00	0.05556	22.15		19.44	2.37
	L0011884	599534.55	4207659.65	15.40	0.00	0.05556	22.15		19.44	2.37
	L0011885	599575.49	4207651.28	15.18	0.00	0.05556	22.15		19.44	2.37
	L0011886	599616.51	4207643.31	14.87	0.00	0.05556	22.15		19.44	2.37
	L0011887	599657.68	4207636.21	14.59	0.00	0.05556	22.15		19.44	2.37
	L0011888	599698.66	4207628.02	15.32	0.00	0.05556	22.15		19.44	2.37
	L0011889	599739.41	4207618.79	15.84	0.00	0.05556	22.15		19.44	2.37
	L0011890	599780.06	4207609.10	16.48	0.00	0.05556	22.15		19.44	2.37
	L0011891	599820.59	4207598.94	17.05	0.00	0.05556	22.15		19.44	2.37
	L0011892	599861.19	4207589.25	17.84	0.00	0.05556	22.15		19.44	2.37

Source Pathway

AERMOD

Building Downwash Information

Option not in use

Emission Rate Units for Output

For Concentration

Unit Factor:	1E6
Emission Unit Label:	GRAMS/SEC
Concentration Unit Label:	MICROGRAMS/M**3

Source Pathway

Source Groups

Source Group ID	List of Sources in Group (Source Range or Single Sources)
VOL3	VOL3
VOL2	VOL2
VOL1	VOL1
STCK2	STCK2
STCK1	STCK1
SLINE5	SLINE5
SLINE4	SLINE4
SLINE3	SLINE3
SLINE2	SLINE2
SLINE1	SLINE1
ALL	All Sources Included

Receptor Pathway

AERMOD

Receptor Networks

Note: Terrain Elavations and Flagpole Heights for Network Grids are in Page RE2 - 1 (If applicable)
Generated Discrete Receptors for Multi-Tier (Risk) Grid and Receptor Locations for Fenceline Grid are in Page RE3 - 1 (If applicable)

Uniform Cartesian Grid

Receptor Network ID	Grid Origin X Coordinate [m]	Grid Origin Y Coordinate [m]	No. of X-Axis Receptors	No. of Y-Axis Receptors	Spacing for X-Axis [m]	Spacing for Y-Axis [m]
UCART1	598725.09	4207057.72	35	35	50.00	50.00

Discrete Receptors

Plant Boundary Receptors

Cartesian Plant Boundary

Primary

Record Number	X-Coordinate [m]	Y-Coordinate [m]	Group Name (Optional)	Terrain Elevations	Flagpole Heights [m] (Optional)
1	599596.97	4208192.41	FENCEPRI	11.42	
2	599734.86	4208144.70	FENCEPRI	10.80	
3	599740.09	4208142.74	FENCEPRI	10.47	
4	599755.12	4207992.43	FENCEPRI	12.03	
5	599806.75	4207885.90	FENCEPRI	13.65	
6	599752.51	4207866.30	FENCEPRI	14.17	
7	599729.64	4207864.99	FENCEPRI	14.13	
8	599554.49	4207802.25	FENCEPRI	17.13	
9	599508.09	4207831.66	FENCEPRI	17.61	
10	599448.62	4207861.72	FENCEPRI	16.95	
11	599440.77	4207864.99	FENCEPRI	16.86	
12	599557.10	4208204.82	FENCEPRI	11.35	
13	599599.58	4208191.10	FENCEPRI	11.10	

Receptor Groups

Record Number	Group ID	Group Description
1	FENCEPRI	Cartesian plant boundary Primary Receptors
2	UCART1	Receptors generated from Uniform Cartesian Grid

Meteorology Pathway

AERMOD

Met Input Data

Surface Met Data

Filename: W:\Projects\2022\2022-039.07 Project Oakstone NorCal Expansion Project\HRA\AERMOD\Concord-Buchana

Format Type: Default AERMET format

Profile Met Data

Filename: W:\Projects\2022\2022-039.07 Project Oakstone NorCal Expansion Project\HRA\AERMOD\Concord-Buchana

Format Type: Default AERMET format

Wind Speed

☐ Wind Speeds are Vector Mean (Not Scalar Means)

Wind Direction

Rotation Adjustment [deg]:

Potential Temperature Profile

Base Elevation above MSL (for Primary Met Tower): 5.50 [m]

Meteorological Station Data

Stations	Station No.	Year	X Coordinate [m]	Y Coordinate [m]	Station Name
Surface		2017			Concord-Buchanan Field
Upper Air		2017			OAKLAND/WSO AP

Data Period

Data Period to Process

Start Date: 1/1/2017 Start Hour: 1 End Date: 1/1/2018 End Hour: 24

Wind Speed Categories

Stability Category	Wind Speed [m/s]	Stability Category	Wind Speed [m/s]
A	1.54	D	8.23
B	3.09	E	10.8
C	5.14	F	No Upper Bound

OPERATIONAL EMISSION CALCULATIONS

HARP2 Emissions Inputs
Oakstone NorCal Expansion Project

Table 1. HARP2 Source Information and Modeled Emissions						
			Hourly Emissions (lb/hr)		Annual Emissions (lb/yr)	
Source Description	Source ID	Type	DPM	Chloroform	DPM	Chloroform
Internal Truck Circulation	SLINE1	Line Volume	0.00048	-	1.938	-
Project Site to Loveridge Road	SLINE2	Line Volume	0.00043	-	1.727	-
Loveridge Road to California Avenue	SLINE3	Line Volume	0.00070	-	2.805	-
Califorania Avenue to SR 4 West	SLINE4	Line Volume	0.00031	-	1.226	-
Loveridge Road/California Avenue Intersection to SR 4 East	SLINE5	Line Volume	0.00052	-	2.074	-
Onsite Idle 1 (Truck Fill)	VOL1	Volume	0.00019	-	0.749	-
Onsite Idle 2 (Truck Fill)	VOL2	Volume	0.00019	-	0.749	-
Onsite Idle 3 (Truck Fill)	VOL3	Volume	0.00019	-	0.749	-
Cooling Tower 1	STICK1	Point	-	3.24E-06	-	0.0189216

HARP2 Emissions Inputs

Oakstone NorCal Expansion Project

Table 2. Modeled Roadway Dimensions				
Roadway Link Description	**AERMOD ID**	**Length (m)**	**Width[1] (m)**	**Area (m^2)**
Internal Truck Circulation	SLINE1	342.2	3.7	1,266.1
Project Site to Loveridge Road	SLINE2	304.9	3.7	1,128.1
Loveridge Road to California Avenue	SLINE3	495.3	7.4	3,665.2
Califorania Avenue to SR 4 West	SLINE4	432.8	7.4	3,202.7
Loveridge Road/California Avenue Intersection to SR 4 East	SLINE5	732.5	7.4	5,420.5

Notes: (1) All roadways, except that on the Project Site, modeled as two lanes with standard 3.7 meter width per lane.

Table 3. Total Trip Information	
Trip Type	**Trips**
Average Daily Trips[1]	40

(1) Daily trip count provided by RCH Group 2023

Table 4. Vehicle EMFAC2021 Emission Rates						
	Type	**DPM Emission Rates[2] (g/mi)**				
Vehicle Type	**Breakdown[1]**	**Idle[3]**	**5 mph**	**15 mph**	**45 mph**	**Composite[4]**
HHDT	100.0%	0.279	0.091	0.061	0.156	0.142
Vehicle Composite		0.279	0.091	0.061	0.156	0.142

Notes: (1) All trucks are assumed to be HHDT.

(2) DPM Emission Rates conservativly represented using EMFAC2021 PM10 Exhaust emission factors averaged for 2024

(3) Idle emission rates in grams per hour per EMFAC2021 outputs.

(4) Composite factor is 70% @ 45 mph + 15% @ 15 mph + 15% @ 5 mph + 1 minute idle per mile

HARP2 Emissions Inputs
Oakstone NorCal Expansion Project

Table 5. Percentage Project Trips

Roadway Link	Trip Information		
	Percentage Total Trips	Peak Hourly[1]	Average Daily
Internal Truck Circulation	100%	3.6	40.0
Project Site to Loveridge Road	100%	3.6	40.0
Loveridge Road to California Avenue	100%	3.6	40.0
Califorania Avenue to SR 4 West	50%	1.8	20.0
Loveridge Road/California Avenue Intersection to SR 4 East	50%	1.8	20.0

Notes: (1) Peak hourly is represented as average daily emissions divided by 11 per industry standard estimate.

(2) Trips onto SR 4 West and SR 4 East distributed equally

Equations:

Emissions (lbs/hr) = Houly Trips * Composite Emission Factor (g/mi) * Distance (m) / 454 (g/lb) / 1,609 (m/mi)

Emissions (lbs/yr) = Daily Trips * Composite EF (g/mi) * Distance (m) * 365 (d) / 454 (g/lb) / 1,609 (m/mi)

Table 6. Calculated Truck Emissions

Roadway Link	Emissions	
	Peak Hourly (lbs/hr)	Annual (lbs/yr)
Internal Truck Circulation	0.000483	1.9380
Project Site to Loveridge Road	0.000430	1.7267
Loveridge Road to California Avenue	0.000699	2.8050
Califorania Avenue to SR 4 West	0.000305	1.2255
Loveridge Road/California Avenue Intersection to SR 4 East	0.000517	2.0742

HARP2 Emissions Inputs
Oakstone NorCal Expansion Project

Table 7. Calculated Emissions from Onsite Idling					
On-Site Idle Emissions	**Composite Emission Factor (g/hour)**	**Idling Time (min)**	**Daily Trucks**	**Peak Hourly (lbs/hr)**	**Annual (lbs/yr)**
Project Trucks	0.279	15	40	0.0006	2.25
Total Onsite				0.0006	2.25
Total per Modeled Area Source (3)				0.0002	0.75

Table 8. Cooling Tower Operational Data				
Source Description	**Average Recirculation Flow Rate (gal/min)**	**Peak Hourly Recirculation Flow Rate[1] (gal/min)**	**Annual Operation (hrs/yr)**	**Annual Throughput[2] (gal/yr)**
Cooling Tower 1	120	180.0	8,760	1,051,200

Notes: (1) Peak Hourly is conservatively estimated at 1.5 average recirculation rate.

(2) Annual Throughput = Avg Hourly Flow Rate (gal/min) * Annual Operation

Table 9. Cooling Tower Emission Factors			
	Emission Factor ($lb/10^6$ gallons cooling water)		
Process	**VOC**	**PM**	**Chloroform**
Chemical Plant Cooling Towers	0.7	19	0.018

Sources: VOC - AP-42, Section 5.1, Table 5.1-2

PM - AP-42, Section 13.4, Table 13.4-1

Chloroform - Summary of Literature Search on HAP Emissions From IPCTs (2004, RTI)

Table 10. Calculated Emissions from Cooling Towers			
	Calculated Emissions		
Process	**VOC**	**PM**	**Chloroform**
Peak Hourly Emissions (lb/hr)	0.00013	0.00342	3.24E-06
Annual Emissions (lb/yr)	0.74	19.97	0.019

APPENDIX C

BIOLOGICAL RESOURCES MEMORANDUM AND ECCCHCP PLANNING SURVEY REPORT APPLICATION

BERKELEY OFFICE
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MEMORANDUM

To: Daniel Jones, RCH Group

Date: 08/25/2023

From: Gabe Saron and Roxanne Foss– Vollmar Natural Lands Consulting

No. Pages: 21, not including attachments

Subject: CEQA Biological Considerations for the Oakstone Northern California Expansion Project, Pittsburg, CA

This memo presents a summary of biological considerations to inform the California Environmental Quality Act (CEQA) documentation for the Oakstone Northern California Expansion Project (Project), located in Pittsburg, Contra Costa County, California. The Project consists of constructing an expansion of the existing compressed gas facility on Linde, Inc. property. The associated Planning Survey Report (PSR) completed for the Project outlines biological factors of concern identified within the East Contra Costa County Habitat Conservancy Plan (HCP) process. The PSR includes a Project description, Project plans, a vicinity map, a site map, and list of avoidance and minimization measures for HCP-targeted taxa. As part of the PSR development process, VNLC ecologist Roxanne Foss conducted a reconnaissance-level site assessment of the study area (the Project impact areas and surrounding Linde, Inc. property, approximately 4.5 acres) on June 23, 2023, which followed previous PSR surveys of the site in 2018 and 2019. This memo summarizes the results from the field survey, California Natural Diversity Database (CNDDB) search and IPAC database search for special-status plants and animals not included in the HCP that have potential to occur in the vicinity of the Project (see **Figures 1 and 2, Attachment A).**

Biological Resource Considerations

- In general, the anticipated permanent and temporary impact areas of the Project site consist of urban (industrial), ruderal grassland and non-native woodland (see mapped land cover types on **Figure 2** of the PSR). The study area (outside of the impact areas but within Linde, Inc. property) includes seasonal and perennial wetlands, drainage features, and riparian woodland. These sensitive resources are avoided by the Project.
- **Potential jurisdictional wetlands** were identified in the immediate vicinity of the Project impact areas during the 2018 delineation of aquatic features as well as the 2023 PSR reconnaissance-level survey and habitat assessment. No formal delineation covers the area west of the railroad tracks, which includes potential temporary impact area (staging area). A formal verified aquatic features delineation covering the entire Project area prior to ground disturbing activities would confirm current wetland boundaries and ensure avoidance of these features.
- **Migratory Bird Treaty Act (MBTA)** protected bird taxa may create nests in the various habitat types both in the impact areas (urban, ruderal grassland and non-native woodland) as well as the surrounding habitat types (riparian woodland, seasonal and perennial wetlands). The MBTA [16 U.S.C. 704] and the California Fish and Game Code [Section 3503] protects specific bird taxa. Any construction during the regional nesting bird season (approximately February 1 to September 1) should include avoidance measures, including a pre-construction survey for any nesting activity.
- **Special-status Plants** – The study area overlaps with a legacy observation of Big tarplant (*Blepharizonia plumosa*) dating from 1937 and presumed extant by CNDDB. Rare plants were not

observed during any site visit (2018, 2019 or 2023) and are not expected in the Project area although none of the surveys were focused rare plant surveys. A total of 89 special-status plant species may be present in the Project region (Table 2) using the California Native Plant Society (CNPS) Rare Plant Inventory nine quad search tool including the Antioch North, Antioch South, Birds Landing, Brentwood, Clayton, Denverton, Honker Bay, Jersey Island and Rio Vista USGS 7.5-minute quadrangles (CNPS 2023). Additional sources used for the classification of sensitive plant resources include CNDDB (2023). By and large, these plants are not expected to be present in the Project impact areas due to the high level of site disturbance (regular mowing, scraping, and dense cover of invasive annual grassland taxa).

- **Special-status Animals** – The study area contains suitable habitat for the following three special-status species covered by the HCP
  - **Golden Eagle** (*Aquila chrysaetos*) (State Fully Protected Species)
  - **Western Burrowing Owl** (*Athene cunicularia*) (State Species of Special Concern)
  - **Swainson's Hawk** (*Buteo swainsonii*) (Federally Threatened)
- The following **Special-Status Animals** are not covered by the HCP, but also have potential to occur:
  - **Song Sparrow ("Modesto" Population)** (*Melospiza melodia* pop. 1) (State Species of Special Concern)
  - **White-tailed Kite** (*Elanus leucurus*) (State Fully Protected Species)
  - **Western Red Bat** (*Lasiurus frantzii*) (State Species of Special Concern)

Table 1. Special-Status Animals Species in Vicinity[1]

Taxon	Status	Preferred Habitat	Habitat within Study Area	Recommendation[2]
Mammals				
Salt Marsh Harvest Mouse (*Reithrodontomys raviventris*)	FE / SE / FP	Saline emergent wetlands dominated by pickleweed	**Absent**. No marsh habitat in study area.	**None.**
San Joaquin Kit Fox *Vulpes macrotis mutica*	FE / SE	Annual grasslands or open scattered shrubs with loose textured soils	**Absent.** No burrows in study area. Study area disconnected from suitable habitat by development.	**None.**
San Joaquin pocket mouse (*Perognathus inornatus*)	None	Grassland and blue oak savannah.	**Absent.** No suitable habitat in study area.	**None.**
Western red bat (*Lasiurus frantzii*)	SSC	Strongly associated with riparian habitats, particularly mature stands of cottonwood/sycamore	**Potential to occur.** May forage in study area. Suitable roosting habitat present in mature trees.	**MM BIO-6**
Birds				
Burrowing Owl (*Athene cunicularia*)	SSC	Grasslands and open areas with California ground squirrel burrows.	**Potential to occur.** Study area contains	**MM BIO-1, MM BIO-2**

Taxon	Status	Preferred Habitat	Habitat within Study Area	Recommendation[2]
			suitable burrows and grassland for denning and foraging.	
California Black Rail (*Laterallus jamaicensis coturniculus*)	ST / FP	Mainly inhabits salt marshes bordering larger bays	**Absent.** No marsh habitat in study area.	**None.**
California Clapper Rail (*Rallus longirostris obsoletus*)	FE / SE / FP	Salt water and brackish marshes traversed by tidal channels.	**Absent.** No marsh habitat in study area.	**None.**
California Condor (*Gymnogyps californianus*)	FE / SE / FP	Roosts in large trees, rocky outcrops and cliffs. Nests in caves, ledges or large tree cavities. Forages in open grassland, savanna, foothills, coastal beaches.	**Absent.** No suitable roost, nest or foraging habitat in study area.	**None.**
California Least Tern (*Sterna antillarum browni*)	FE / SE / FP	Estuaries and bays; nests on exposed tidal flats or beaches	**Absent.** No estuary or bay habitat in study area.	**None.**
Double-Crested Cormorant (*Nannopterum auritum*)	None.	Estuaries, bays, lakes and rivers.	**Absent.** No suitable aquatic habitat in study area.	**None.**
Golden Eagle (*Aquila chrysaetos*)	FP	Rolling foothills, mountain areas, sage-juniper flats, desert. Nests are constructed on cliffs or in large trees in open areas.	**Potential (low).** Study area contains marginal quality foraging habitat.	**MM BIO-1, MM BIO-3**
Saltmarsh Common Yellowthroat (*Geothlypis tricha sinuosa*)	SSC	San Francisco Bay fresh and saltwater marshes. Requires thick, continuous cover down to water surface for foraging	**Absent.** No suitable marsh habitat in study area.	**None.**
Song Sparrow ("Modesto" population) *Melospiza melodia* pop. 1	SSC	Riparian areas, irrigation ditches, open habitats with vegetated ground cover.	**Potential to occur**. Study area contains suitable nesting and foraging habitat in riparian corridor.	**MM BIO-5**
Suisun Song Sparrow (*Melospiza melodia maxillaris*)	BCC / SSC	Resident of brackish water marshes surrounding Suisun Bay.	**Absent**. No suitable marsh	**None.**

Taxon	Status	Preferred Habitat	Habitat within Study Area	Recommendation[2]
		Inhabits cattails, tules, and tangles bordering sloughs	habitat in study area.	
Swainson's Hawk (*Buteo swainsonii*)	ST	Breeds in stands of tall trees in open areas. Requires adjacent suitable foraging habitats such as grasslands or alfalfa fields supporting rodents.	**Potential to Occur.** Study area contains marginal quality nesting and foraging habitat.	**MM BIO-1**
White-tailed Kite (*Elanus leucurus*)	FP	Typically nests in trees surrounded by open foraging habitat.	**Potential to occur.** Suitable foraging and nesting habitat present in study area.	**MM BIO-5**
Amphibians				
California Red-legged Frog (*Rana draytonii*)	FT / SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby, or emergent riparian vegetation.	**Absent.** No permanent wetlands with appropriate cover in study area.	**None.**
California Tiger Salamander (*Ambystoma californiense*)	FT / ST	Seasonal water bodies without fish (i.e., vernal pools and stock ponds) and grassland/ woodland habitats with summer refugia (i.e., burrows).	**Absent.** No seasonal wetland or refugia habitat present in study area.	**None.**
Foothill Yellow-legged Frog (*Rana boylii*)		Perennial streams with forest and some vegetative cover.	**Absent.** No perennial stream habitat in study area.	**None.**
Reptiles				
Alameda whipsnake (*Masticophis lateralis euryxanthus*)	FT / ST	Scrub, chaparral, grassland, and woodland habitat mosaics. South-facing slopes and ravines.	**Absent.** No suitable habitat mosaic and slopes within study area.	**None.**
California glossy snake (*Arizona elegans occidentalis*)	SSC	Scrub, rocky washes, grasslands and chapparal. Prefers friable soils	**Absent.** No suitable grassland within study area.	**None.**
Giant gartersnake (*Thamnophis gigas*)	FT / ST	Found primarily in marshes, sloughs, drainage canals, and irrigation ditches, especially around rice fields, and occasionally in	**Absent.** No suitable perennial waterways in study area.	**None.**

Taxon	Status	Preferred Habitat	Habitat within Study Area	Recommendation[2]
		slow-moving creeks. Basks on vegetation near water in spring, and utilizes animal burrows and vegetation piles during hotter weather.		
Northern California legless lizard (*Aniella pulchra*)	SSC	Sandy or loose loamy soils under sparse vegetation.	**Absent.** No suitable sandy soils in study area.	**None.**
Western pond turtle (*Emys marmorata*)	SSC	Primarily inhabits aquatic habitats, including ponds, slow moving streams, lakes, marshes, and canals.	**Absent.** No suitable aquatic habitat in study area.	**None.**
Fish				
Delta smelt (*Hypomesus transpacificus*)	FT / SE	Endemic to the Sacramento–San Joaquin River Delta	**Absent.** No suitable aquatic habitat in study area.	**None.**
Green sturgeon – southern DPS (*Acispenser medirostris* pop. 1)	FT	Coastal lagoons, bays, estuaries, sloughs, tidal areas, mainstem rivers.	**Absent.** No suitable aquatic habitat in study area.	**None.**
Longfin smelt (*Spirinchus thaleicthys*)	FC / ST	Coastal lagoons, bays, estuaries, sloughs, tidal areas.	**Absent.** No suitable aquatic habitat in study area.	**None.**
Steelhead – Central Valley DPS (*Oncorhynchus mykiss irideus* pop. 11)	FT	Migrate between ocean and freshwater environments, with hatching and rearing in freshwater environments, migration to ocean for maturation, then return to natal freshwater streams for spawning. Includes all naturally spawned Central Valley steelhead populations in the Sacramento and San Joaquin rivers and their tributaries.	**Absent.** No suitable aquatic habitat in study area.	**None.**
Invertebrates				
Crotch bumble bee (*Perdidta scitula antiochensis*)	SCE	Open grassland and scrub.	**Absent.** No suitable grassland in study area.	**None.**
Lang's metalmark butterfly	FE	Occurs primarily in Antioch Dunes National	**Absent.** No suitable dune	**None.**

Taxon	Status	Preferred Habitat	Habitat within Study Area	Recommendation[2]
(*Apodemia mormo langei*)		Wildlife Refuge, associciated with naked-stemmed buckwheat (*Eriogonum nudum* var. *psychola*).	habitat or host plants in study area.	
Monarch butterfly – California overwintering population (*Danaus plexippus* pop. 1)	FC	In winter, roosts in stands of mature *Eucalyptus* trees. Rears on milkweed (*Asclepias*) species.	**Absent.** No suitable roost trees or host plants in study area.	**None.**
Western ridged mussel (*Gonidea angulata*)	None	Lakes and rivers.	**Absent.** No suitable aquatic habitat in study area.	**None**.
Western bumble bee (*Bombus occidentalis*)	SCE	Occurs near grasslands, shrublands and forests where wildflowers are abundant. Nest in underground cavities or animal burrows. Forage and overwinter in meadows and grasslands with abundant flowers.	**Absent.** No suitable grassland habitat in study area.	**None.**
Vernal pool fairy Shrimp (*Branchinecta lynchi*)	FT	Vernal pools and other seasonally ponded areas.	**Absent.** No vernal pools in study area.	**None.**
Vernal pool tadpole shrimp (*Lepidurus packardi*)	FE	Larger, often turbid seasonal vernal pools in lowland valley regions.	**Absent.** No vernal pools in study area.	**None.**

[1]Status: FT – Federal Threatened; FE – Federal Endangered; FC – Federal Candidate; ST – State Threatened; SE – State Endangered; SCE – State Candidate Endangered; FP – CDFW Fully Protected; SSC – CDFW Species of Special Concern; USFWS: BCC – USFWS Bird of Conservation Concern

Table 2. Special-status Plants in Vicinity

Scientific Name Common Name (Family)	Status[1] Federal/ State/CRPR	Habitat, Elevation, and Blooming Period[2]	Potential to Occur in Study Area
Amsinckia grandiflora large-flowered fiddleneck (Boraginaceae)	FE/CE/1B.1	Cismontane woodland, Valley and foothill grassland; 885-1805 feet; (March)April-May	**Not Expected.** No suitable habitat in study area.
Androsace elongata ssp. *acuta* California androsace (Primulaceae)	--/--/4.2	Chaparral, Cismontane woodland, Coastal scrub, Meadows and seeps, Pinyon and Juniper woodland, Valley and foothill grassland; 490-4280 feet; March-June	Not Expected. No suitable habitat in study area.
Anomobryum julaceum slender silver moss (Bryaceae)	--/--/4.2	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest; Roadsides (usually); damp rock and soil on outcrops, usually on roadcuts; 330-3280 feet;	Not Expected. No suitable habitat in study area.
Arabis blepharophylla coast rockcress (Brassicaceae)	--/--/4.3	Broadleafed upland forest, Coastal bluff scrub, Coastal prairie, Coastal scrub; Rocky; 10-3610 feet; February-May	Not Expected. No suitable habitat in study area.
Arctostaphylos auriculata Mt. Diablo manzanita (Ericaceae)	--/--/1B.3	Chaparral (sandstone), Cismontane woodland; 445-2135 feet; January-March	Not Expected. No suitable habitat in study area.
Arctostaphylos manzanita ssp. *laevigata* Contra Costa manzanita (Ericaceae)	--/--/1B.2	Chaparral (rocky); 1410-3610 feet; January-March(April)	Not Expected. No suitable habitat in study area.
Astragalus tener var. *tener* alkali milk-vetch (Fabaceae)	--/--/1B.2	Playas, Valley and foothill grassland (adobe clay), Vernal pools; Alkaline;5-195 feet; March-June	Not Expected. No suitable habitat in study area.
Atriplex cordulata var. *cordulata* heartscale (Chenopodiaceae)	--/--/1B.2	Chenopod scrub, Meadows and seeps, Valley and foothill grassland (sandy); Alkaline (sometimes); sometimes saline; 0-1835 feet; April-October	Not Expected. No suitable habitat in study area.

Scientific Name Common Name (Family)	Status[1] Federal/ State/CRPR	Habitat, Elevation, and Blooming Period[2]	Potential to Occur in Study Area
Atriplex coronata var. *coronata* crownscale (Chenopodiaceae)	--/--/4.2	Chenopod scrub, Valley and foothill grassland, Vernal pools; Alkaline, Clay (often);5-1935 feet; March-October	Not Expected. No suitable habitat in study area.
Atriplex depressa brittlescale (Chenopodiaceae)	--/--/1B.2	Chenopod scrub, Meadows and seeps, Playas, Valley and foothill grassland, Vernal pools; Alkaline, Clay;5-1050 feet; April-October	Not Expected. No suitable habitat in study area.
Blepharizonia plumosa big tarplant (Asteraceae)	--/--/1B.1	Valley and foothill grassland; Clay (usually);100-1655 feet; July-October	Not Expected. Study overlaps with an observation dating from 1937. Likely extirpated by development.
Calandrinia breweri Brewer's calandrinia (Montiaceae)	--/--/4.2	Chaparral, Coastal scrub; Burned areas, Disturbed areas, Loam (sometimes), Sandy (sometimes);35-4005 feet; (January)March-June	Not Expected. No suitable habitat in study area.
Calochortus pulchellus Mt. Diablo fairy-lantern (Liliaceae)	--/--/1B.2	Chaparral, Cismontane woodland, Riparian woodland, Valley and foothill grassland; 100-2755 feet; April-June	Not Expected. No suitable habitat in study area.
Centromadia parryi ssp. *parryi* pappose tarplant (Asteraceae)	--/--/1B.2	Chaparral, Coastal prairie, Marshes and swamps (coastal salt), Meadows and seeps, Valley and foothill grassland (vernally mesic); Alkaline (often);0-1380 feet; May-November	Not Expected. No suitable habitat in study area.
Centromadia parryi ssp. *rudis* Parry's rough tarplant (Asteraceae)	--/--/4.2	Valley and foothill grassland, Vernal pools; Alkaline, Roadsides (sometimes), Seeps, Vernally Mesic;0-330 feet; May-October	Not Expected. No suitable habitat in study area.
Chloropyron molle ssp. *hispidum*	--/--/1B.1	Meadows and seeps, Playas, Valley and foothill	Not Expected. No suitable

Scientific Name Common Name (Family)	Status[1] Federal/ State/CRPR	Habitat, Elevation, and Blooming Period[2]	Potential to Occur in Study Area
hispid salty bird's-beak (Orobanchaceae)		grassland; Alkaline;5-510 feet; June-September	habitat in study area.
Chloropyron molle ssp. *molle* soft salty bird's-beak (Orobanchaceae)	FE/CR/1B.2	Marshes and swamps (coastal salt); 0-10 feet; June-November	Not Expected. No suitable habitat in study area.
Cicuta maculata var. *bolanderi* Bolander's water-hemlock (Apiaceae)	--/--/2B.1	Marshes and swamps (brackish, coastal, freshwater); 0-655 feet; July-September	Not Expected. No suitable habitat in study area.
Cirsium hydrophilum var. *hydrophilum* Suisun thistle (Asteraceae)	FE/--/1B.1	Marshes and swamps (salt); 0-5 feet; June-September	Not Expected. No suitable habitat in study area.
Collomia diversifolia serpentine collomia (Polemoniaceae)	--/--/4.3	Chaparral, Cismontane woodland; Gravelly (sometimes), Rocky (sometimes), Serpentinite (sometimes); 655-1970 feet; May-June	Not Expected. No suitable habitat in study area.
Convolvulus simulans small-flowered morning-glory (Convolvulaceae)	--/--/4.2	Chaparral (openings), Coastal scrub, Valley and foothill grassland; Clay, Seeps, Serpentinite; 100-2430 feet; March-July	Not Expected. No suitable habitat in study area.
Chloropyron molle ssp. molle soft salty bird's-beak (Orobanchaceae)	FE/CR/1B.2	Marshes and swamps (coastal salt); Microhabitat: none; 0-10 feet; June-November	Not Expected. No suitable habitat in study area.
Cordylanthus nidularius Mt. Diablo bird's-beak (Orobanchaceae)	--/CR/1B.1	Chaparral (serpentinite); 1970-2625 feet; June-August	Not Expected. No suitable habitat in study area.
Cryptantha hooveri Hoover's cryptantha (Boraginaceae)	--/--/1A	Inland dunes, Valley and foothill grassland (sandy); 30-490 feet; April-May	Not Expected. No suitable habitat in study area.

Scientific Name Common Name (Family)	Status[1] Federal/ State/CRPR	Habitat, Elevation, and Blooming Period[2]	Potential to Occur in Study Area
Delphinium californicum ssp. *interius* Hospital Canyon larkspur (Ranunculaceae)	--/--/1B.2	Chaparral (openings), Cismontane woodland (mesic), Coastal scrub; 640-3595 feet; April-June	Not Expected. No suitable habitat in study area.
Downingia pusilla dwarf downingia (Campanulaceae)	--/--/2B.2	Valley and foothill grassland (mesic), Vernal pools; 5-1460 feet; March-May	Not Expected. No suitable habitat in study area.
Eleocharis parvula small spikerush (Cyperaceae)	--/--/4.3	Marshes and swamps; 5-9910 feet; (April) June-August (September)	Not Expected. No suitable habitat in study area.
Eriastrum ertterae Lime Ridge eriastrum (Polemoniaceae)	--/CC/1B.1	Chaparral (edges, openings); Alkaline (sometimes), Sandy; sometimes semi-alkaline; 655-950 feet; June-July	Not Expected. No suitable habitat in study area.
Eriogonum nudum var. *psychicola* Antioch Dunes buckwheat (Polygonaceae)	--/--/1B.1	Inland dunes; 0-65 feet; July-October	Not Expected. No suitable habitat in study area.
Eriogonum truncatum Mt. Diablo buckwheat (Polygonaceae)	--/--/1B.1	Chaparral, Coastal scrub, Valley and foothill grassland; Sandy;10-1150 feet; April-September(November-December)	Not Expected. No suitable habitat in study area.
Eriogonum umbellatum var. *bahiiforme* bay buckwheat (Polygonaceae)	--/--/4.2	Cismontane woodland, Lower montane coniferous forest; Rocky, Serpentinite (often);2295-7220 feet; July-September	Not Expected. No suitable habitat in study area.
Eriophyllum jepsonii Jepson's woolly sunflower (Asteraceae)	--/--/4.3	Chaparral, Cismontane woodland, Coastal scrub; Serpentinite (sometimes);655-3365 feet; April-June	Not Expected. No suitable habitat in study area.
Eryngium jepsonii Jepson's coyote-thistle (Apiaceae)	--/--/1B.2	Valley and foothill grassland, Vernal pools; Clay;10-985 feet; April-August	Not Expected. No suitable habitat in study area.

Scientific Name Common Name (Family)	Status[1] Federal/ State/CRPR	Habitat, Elevation, and Blooming Period[2]	Potential to Occur in Study Area
Erysimum capitatum var. *angustatum* Contra Costa wallflower (Brassicaceae)	FE/CE/1B.1	Inland dunes; 10-65 feet; March-July	Not Expected. No suitable habitat in study area.
Erythranthe inconspicua small-flowered monkeyflower (Phrymaceae)	--/--/4.3	Chaparral, Cismontane woodland, Lower montane coniferous forest; Mesic;900-2495 feet; May-June	Not Expected. No suitable habitat in study area.
Eschscholzia rhombipetala diamond-petaled California poppy (Papaveraceae)	--/--/1B.1	Valley and foothill grassland (alkaline, clay); 0-3200 feet; March-April	Not Expected. No suitable habitat in study area.
Extriplex joaquinana San Joaquin spearscale (Chenopodiaceae)	--/--/1B.2	Chenopod scrub, Meadows and seeps, Playas, Valley and foothill grassland; Alkaline;5-2740 feet; April-October	Not Expected. No suitable habitat in study area.
Fritillaria agrestis stinkbells (Liliaceae)	--/--/4.2	Chaparral, Cismontane woodland, Pinyon and Juniper woodland, Valley and foothill grassland; Clay, Serpentinite (sometimes);35-5100 feet; March-June	Not Expected. No suitable habitat in study area.
Fritillaria liliacea fragrant fritillary (Liliaceae)	--/--/1B.2	Cismontane woodland, Coastal prairie, Coastal scrub, Valley and foothill grassland; Serpentinite (often);10-1345 feet; February-April	Not Expected. No suitable habitat in study area.
Galium andrewsii ssp. *gatense* phlox-leaf serpentine bedstraw (Rubiaceae)	--/--/4.2	Chaparral, Cismontane woodland, Lower montane coniferous forest; Rocky, Serpentinite;490-4755 feet; April-July	Not Expected. No suitable habitat in study area.
Grimmia torenii Toren's grimmia (Grimmiaceae)	--/--/1B.3	Chaparral, Cismontane woodland, Lower montane coniferous forest; Carbonate, Openings, Rocky, Volcanic; boulder and rock walls; 1065-3805 feet;	Not Expected. No suitable habitat in study area.

Scientific Name Common Name (Family)	Status[1] Federal/ State/CRPR	Habitat, Elevation, and Blooming Period[2]	Potential to Occur in Study Area
Helianthella castanea Diablo helianthella (Asteraceae)	--/--/1B.2	Broadleafed upland forest, Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland, Valley and foothill grassland; Rocky (usually); Azonal soil, often partial Shade; 195-4265 feet; March-June	Not Expected. No suitable habitat in study area.
Hesperevax caulescens hogwallow starfish (Asteraceae)	--/--/4.2	Valley and foothill grassland (mesic clay), Vernal pools (shallow); Alkaline (sometimes);0-1655 feet; March-June	Not Expected. No suitable habitat in study area.
Hesperolinon breweri Brewer's western flax (Linaceae)	--/--/1B.2	Chaparral, Cismontane woodland, Valley and foothill grassland; Serpentinite (usually);100-3100 feet; May-July	Not Expected. No suitable habitat in study area.
Hibiscus lasiocarpos var. *occidentalis* woolly rose-mallow (Malvaceae)	--/--/1B.2	Marshes and swamps (freshwater);Often in riprap on sides of levees.; 0-395 feet; June-September	Not Expected. No suitable habitat in study area.
Isocoma arguta Carquinez goldenbush (Asteraceae)	--/--/1B.1	Valley and foothill grassland (alkaline); 5-65 feet; August-December	Not Expected. No suitable habitat in study area.
Lasthenia conjugens Contra Costa goldfields (Asteraceae)	FE/--/1B.1	Cismontane woodland, Playas (alkaline), Valley and foothill grassland, Vernal pools; Mesic;0-1540 feet; March-June	Not Expected. No suitable habitat in study area.
Lasthenia glabrata ssp. *coulteri* Coulter's goldfields (Asteraceae)	--/--/1B.1	Marshes and swamps (coastal salt), Playas, Vernal pools; 5-4005 feet; February-June	Not Expected. No suitable habitat in study area.
Lathyrus jepsonii var. *jepsonii* Delta tule pea (Fabaceae)	--/--/1B.2	Marshes and swamps (brackish, freshwater); 0-15 feet; May-July(August-September)	Not Expected. No suitable habitat in study area.
Legenere limosa legenere (Campanulaceae)	--/--/1B.1	Vernal pools; 5-2885 feet; April-June	Not Expected. No suitable habitat in study area.

Scientific Name Common Name (Family)	Status[1] Federal/ State/CRPR	Habitat, Elevation, and Blooming Period[2]	Potential to Occur in Study Area
Leptosiphon ambiguus serpentine leptosiphon (Polemoniaceae)	--/--/4.2	Cismontane woodland, Coastal scrub, Valley and foothill grassland; Serpentinite (usually);395-3710 feet; March-June	Not Expected. No suitable habitat in study area.
Leptosiphon grandiflorus large-flowered leptosiphon (Polemoniaceae)	--/--/4.2	Cismontane woodland, Closed-cone coniferous forest, Coastal bluff scrub, Coastal dunes, Coastal prairie, Coastal scrub, Valley and foothill grassland; Sandy (usually);15-4005 feet; April-August	Not Expected. No suitable habitat in study area.
Lessingia hololeuca woolly-headed lessingia (Asteraceae)	--/--/3	Broadleafed upland forest, Coastal scrub, Lower montane coniferous forest, Valley and foothill grassland; Clay, Serpentinite;50-1000 feet; June-October	Not Expected. No suitable habitat in study area.
Lilaeopsis masonii Mason's lilaeopsis (Apiaceae)	--/CR/1B.1	Marshes and swamps (brackish, freshwater), Riparian scrub; 0-35 feet; April-November	Not Expected. No suitable habitat in study area.
Lilium rubescens redwood lily (Liliaceae)	--/--/4.2	Broadleafed upland forest, Chaparral, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest; Roadsides (sometimes), Serpentinite (sometimes);100-6265 feet; (March)April-August(September)	Not Expected. No suitable habitat in study area.
Limosella australis Delta mudwort (Scrophulariaceae)	--/--/2B.1	Marshes and swamps (brackish, freshwater), Riparian scrub; Streambanks (usually); Usually mud banks; 0-10 feet; May-August	Not Expected. No suitable habitat in study area.
Lupinus albifrons var. *abramsii* Abrams' lupine (Fabaceae)	--/--/3.2	Broadleafed upland forest, Chaparral, Coastal scrub, Lower montane coniferous forest, Valley and foothill	Not Expected. No suitable habitat in study area.

Scientific Name Common Name (Family)	Status[1] Federal/ State/CRPR	Habitat, Elevation, and Blooming Period[2]	Potential to Occur in Study Area
		grassland; Serpentinite (sometimes);410-6560 feet; April-June	
Madia radiata showy golden madia (Asteraceae)	--/--/1B.1	Cismontane woodland, Valley and foothill grassland; 80-3985 feet; March-May	Not Expected. No suitable habitat in study area.
Malacothamnus hallii Hall's bush-mallow (Malvaceae)	--/--/1B.2	Chaparral, Coastal scrub; 35-2495 feet; (April)May-September(October)	Not Expected. No suitable habitat in study area.
Meesia triquetra three-ranked hump moss (Meesiaceae)	--/--/4.2	Bogs and fens, Meadows and seeps, Subalpine coniferous forest, Upper montane coniferous forest (mesic);soil; 4265-9690 feet; July	Not Expected. No suitable habitat in study area.
Microseris paludosa Marsh microseris (Asteraceae)	--/--/1B.2	Cismontane woodland, Closed-cone coniferous forest, Coastal scrub, Valley and foothill grassland; 15-1165 feet; April-June(July)	Not Expected. No suitable habitat in study area.
Microseris sylvatica sylvan microseris (Asteraceae)	--/--/4.2	Chaparral, Cismontane woodland, Great Basin scrub, Pinyon and Juniper woodland, Valley and foothill grassland; Serpentinite (rarely);150-4920 feet; March-June	Not Expected. No suitable habitat in study area.
Monolopia gracilens woodland woollythreads (Asteraceae)	--/--/1B.2	Broadleafed upland forest (openings), Chaparral (openings), Cismontane woodland, North Coast coniferous forest (openings), Valley and foothill grassland; Serpentinite;330-3935 feet; (February)March-July	Not Expected. No suitable habitat in study area.
Myosurus minimus ssp. *apus* little mousetail (Ranunculaceae)	--/--/3.1	Valley and foothill grassland, Vernal pools (alkaline); 65-2100 feet; March-June	Not Expected. No suitable habitat in study area.
Navarretia gowenii Lime Ridge	--/--/1B.1	Chaparral; 590-1000 feet; May-June	Not Expected. No suitable

Scientific Name Common Name (Family)	Status[1] Federal/ State/CRPR	Habitat, Elevation, and Blooming Period[2]	Potential to Occur in Study Area
navarretia (Polemoniaceae)			habitat in study area.
Navarretia heterandra Tehama navarretia (Polemoniaceae)	--/--/4.3	Valley and foothill grassland (mesic), Vernal pools; 100-3315 feet; April-June	Not Expected. No suitable habitat in study area.
Navarretia leucocephala ssp. *bakeri* Baker's navarretia (Polemoniaceae)	--/--/1B.1	Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Valley and foothill grassland, Vernal pools; Mesic;15-5710 feet; April-July	Not Expected. No suitable habitat in study area.
Navarretia nigelliformis ssp. *radians* shining navarretia (Polemoniaceae)	--/--/1B.2	Cismontane woodland, Valley and foothill grassland, Vernal pools; Clay (sometimes);215-3280 feet; (March)April-July	Not Expected. No suitable habitat in study area.
Oenothera deltoides ssp. *howellii* Antioch Dunes evening-primrose (Onagraceae)	FE/CE/1B.1	Inland dunes; 0-100 feet; March-September	Not Expected. No suitable habitat in study area.
Phacelia phacelioides Mt. Diablo phacelia (Hydrophyllaceae)	--/--/1B.2	Chaparral, Cismontane woodland; Rocky;1640-4495 feet; April-May	Not Expected. No suitable habitat in study area.
Piperia michaelii Michael's rein orchid (Orchidaceae)	--/--/4.2	Chaparral, Cismontane woodland, Closed-cone coniferous forest, Coastal bluff scrub, Coastal scrub, Lower montane coniferous forest; 10-3000 feet; April-August	Not Expected. No suitable habitat in study area.
Plagiobothrys hystriculus bearded popcornflower (Boraginaceae)	--/--/1B.1	Valley and foothill grassland (mesic), Vernal pools (Marchgins);often vernal swales; 0-900 feet; April-May	Not Expected. No suitable habitat in study area.
Potamogeton zosteriformis eel-grass pondweed (Potamogetonaceae)	--/--/2B.2	Marshes and swamps (freshwater); 0-6105 feet; June-July	Not Expected. No suitable habitat in study area.

Scientific Name Common Name (Family)	Status[1] Federal/ State/CRPR	Habitat, Elevation, and Blooming Period[2]	Potential to Occur in Study Area
Puccinellia simplex California alkali grass (Poaceae)	--/--/1B.2	Chenopod scrub, Meadows and seeps, Valley and foothill grassland, Vernal pools; Alkaline, Flats, Lake Marchgins, Vernally Mesic; sinks; 5-3050 feet; March-May	Not Expected. No suitable habitat in study area.
Ranunculus lobbii Lobb's aquatic buttercup (Ranunculaceae)	--/--/4.2	Cismontane woodland, North Coast coniferous forest, Valley and foothill grassland, Vernal pools; Mesic;50-1540 feet; February-May	Not Expected. No suitable habitat in study area.
Ravenella exigua chaparral harebell (Campanulaceae)	--/--/1B.2	Chaparral (rocky, usually serpentinite); 900-4100 feet; May-June	Not Expected. No suitable habitat in study area.
Sagittaria sanfordii Sanford's arrowhead (Alismataceae)	--/--/1B.2	Marshes and swamps (shallow freshwater); 0-2135 feet; May-October(November)	Not Expected. No suitable habitat in study area.
Sanicula saxatilis rock sanicle (Apiaceae)	--/CR/1B.2	Broadleafed upland forest, Chaparral, Valley and foothill grassland; Rocky, Scree, Talus;2035-3855 feet; April-May	Not Expected. No suitable habitat in study area.
Senecio aphanactis chaparral ragwort (Asteraceae)	--/--/2B.2	Chaparral, Cismontane woodland, Coastal scrub; Alkaline (sometimes);50-2625 feet; January-April(May)	Not Expected. No suitable habitat in study area.
Senecio hydrophiloides sweet Marchsh ragwort (Asteraceae)	--/--/4.2	Lower montane coniferous forest, Meadows and seeps; Mesic;0-9185 feet; May-August	Not Expected. No suitable habitat in study area.
Sidalcea keckii Keck's checkerbloom (Malvaceae)	FE/--/1B.1	Cismontane woodland, Valley and foothill grassland; Clay, Serpentinite;245-2135 feet; April-May(June)	Not Expected. No suitable habitat in study area.
Spergularia macrotheca var. *longistyla*	--/--/1B.2	Marshes and swamps, Meadows and seeps; Alkaline;0-835 feet; February-May	Not Expected. No suitable habitat in study area.

Scientific Name Common Name (Family)	Status[1] Federal/ State/CRPR	Habitat, Elevation, and Blooming Period[2]	Potential to Occur in Study Area
long-styled sand-spurrey (Caryophyllaceae)			
Streptanthus albidus ssp. *peramoenus* most beautiful jewelflower (Brassicaceae)	--/--/1B.2	Chaparral, Cismontane woodland, Valley and foothill grassland; Serpentinite;310-3280 feet; (March)April-September(October)	Not Expected. No suitable habitat in study area.
Streptanthus hispidus Mt. Diablo jewelflower (Brassicaceae)	--/--/1B.3	Chaparral, Valley and foothill grassland; Rocky;1200-3935 feet; March-June	Not Expected. No suitable habitat in study area.
Stuckenia filiformis ssp. *alpina* northern slender pondweed (Potamogetonaceae)	--/--/2B.2	Marshes and swamps (shallow freshwater); 985-7055 feet; May-July	Not Expected. No suitable habitat in study area.
Symphyotrichum lentum Suisun Marchsh aster (Asteraceae)	--/--/1B.2	Marshes and swamps (brackish, freshwater); 0-10 feet; (April)May-November	Not Expected. No suitable habitat in study area.
Triquetrella californica coastal triquetrella (Pottiaceae)	--/--/1B.2	Coastal bluff scrub, Coastal scrub;soil; 35-330 feet;	Not Expected. No suitable habitat in study area.
Tropidocarpum capparideum caper-fruited tropidocarpum (Brassicaceae)	--/--/1B.1	Valley and foothill grassland (alkaline hills); 5-1495 feet; March-April	Not Expected. No suitable habitat in study area.
Viburnum ellipticum oval-leaved viburnum (Viburnaceae)	--/--/2B.3	Chaparral, Cismontane woodland, Lower montane coniferous forest; 705-4595 feet; May-June	Not Expected. No suitable habitat in study area.

[1]State or federal listing: F = Federal or C = California; E = endangered, T = threatened, R = rare, C = candidate for state listing
CRPR 1A: Plants presumed extirpated in California and either rare or extinct elsewhere; CRPR List 1B = Plants rare, threatened or endangered in CA and elsewhere; CRPR 2B = Plants rare, threatened or endangered in California but more common elsewhere; CRPR 3 = More information is needed about plant; CRPR 4 = Plants of limited distribution, a watch list
CRPR: '.1' = Seriously threatened in CA; '.2' = Fairly threatened in CA; '.3' = Not very threatened in CA

[2]Elevation range within the Study Area is approximately 11 to 14 feet.

Recommended Avoidance and Minimization Measures

MM BIO-1 In order to receive coverage under the HCP, the project applicant shall pay a Development Fee. This fee will amount to a per acre value. Payment of the Development Fee would address the loss of upland habitat potentially used special-status species and contribute towards the regional strategy for preserving viable populations.

MM BIO-2 As required by the HCP, the project shall implement the following avoidance measures for potential effects on Burrowing Owl during construction:

1. Prior to any ground disturbance, a USFWS/CDFW qualified biologist shall conduct a pre-construction survey of the study area for Burrowing Owls. The pre-construction survey shall establish the presence or absence of western burrowing owl and/or habitat features and evaluate use by owls in accordance with CDFW survey guidelines (California Department of Fish and Game 1993).

On the parcel where the activity is proposed, the biologist shall survey the proposed disturbance footprint and a 500-foot radius from the perimeter of the proposed footprint to identify burrows and owls. Adjacent parcels under different land ownership shall not be required to be surveyed. Surveys should take place near sunrise or sunset in accordance with CDFW guidelines. All burrows or burrowing owls shall be identified and mapped. Surveys shall take place no more than 30 days prior to construction. During the breeding season (February 1–August 31), surveys shall document whether Burrowing Owls are nesting in or directly adjacent to disturbance areas. During the non-breeding season (September 1–January 31), surveys shall document whether burrowing owls are using habitat in or directly adjacent to any disturbance area. Survey results shall be valid only for the season (breeding or non-breeding) during which the survey is conducted.

2. If burrowing owls are found during the breeding season (February 1–August 31), the project applicant shall avoid all nest sites that could be disturbed by project construction during the remainder of the breeding season or while the nest is occupied by adults or young. Avoidance shall include establishment of a non-disturbance buffer zone (described below). Construction may occur during the breeding season if a qualified biologist monitors the nest and determines that the birds have not begun egg-laying and incubation or that the juveniles from the occupied burrows have fledged. During the non-breeding season (September 1–January 31), the project applicant shall avoid the owls and the burrows they are using, if possible. Avoidance shall include the establishment of a buffer zone (described below).

3. If occupied burrows for Burrowing Owls are not avoided, passive relocation shall be implemented. Owls shall be excluded from burrows in the immediate impact zone and within a 160-foot buffer zone by installing one-way doors in burrow entrances. These doors shall be in place for 48 hours prior to excavation. The project area shall be monitored daily for 1 week to confirm that the owl has abandoned the burrow. Whenever possible, burrows shall be excavated using hand tools and refilled to prevent reoccupation (California Department of Fish and Game 1995). Plastic tubing or a similar structure shall be inserted in the tunnels during excavation to maintain an escape route for any owls inside the burrow.

MM BIO-3 As required by the HCP, the project shall implement the following avoidance measures for potential effects on Golden Eagles during construction:

1. Prior to implementation of construction activities, a qualified biologist shall conduct a pre-construction survey to establish whether an active golden eagle nest is present within the study area. If an occupied nest is present, minimization requirements and construction monitoring shall be required, as detailed below.

2. Construction activities shall be prohibited within 0.5 mile of active nests. Nests can be built and active at almost any time of the year, although mating and egg incubation occurs late January through August, with peak activity in March through July. If site-specific conditions or the nature of the construction activity (e.g., steep topography, dense vegetation, limited activities) indicate that a smaller buffer could be appropriate or that a larger buffer should be implemented, the Implementing Entity shall coordinate with CDFW/USFWS to determine the appropriate buffer size.

3. Construction monitoring shall ensure that no construction activities occur within the buffer zone established around an active nest. Construction monitoring shall ensure that direct effects to Golden Eagles are avoided.

MM BIO-4 As required by the HCP, the project shall implement the following avoidance measures for potential effects on Swainson's Hawks during construction:

1. Prior to any ground disturbance related to covered activities that occurs during the nesting season (March 15–September 15), a qualified biologist will conduct a preconstruction survey no more than 1 month prior to construction to establish whether Swainson's hawk nests within 1,000 feet of the project site are occupied. If potentially occupied nests within 1,000 feet are off the project site, then their occupancy will be determined by observation from public roads or by observations of Swainson's hawk activity (e.g., foraging) near the project site. If nests are occupied, minimization measures and construction monitoring are required (see below).

2. During the nesting season (March 15–September 15), covered activities within 1,000 feet of occupied nests or nests under construction will be prohibited to prevent nest abandonment. If site-specific conditions or the nature of the covered activity (e.g., steep topography, dense vegetation, limited activities) indicate that a smaller buffer could be used, the Implementing Entity will coordinate with CDFW/USFWS to determine the appropriate buffer size.

3. If young fledge prior to September 15, covered activities can proceed normally. If the active nest site is shielded from view and noise from the project site by other development, topography, or other features, the project applicant can apply to the Implementing Entity for a waiver of this avoidance measure. Any waiver must also be approved by USFWS and CDFW. While the nest is occupied, activities outside the buffer can take place.

4. All active nest trees will be preserved on site, if feasible. Nest trees, including non-native trees, lost to covered activities will be mitigated by the project proponent according to the requirements below.

MM BIO-5 If project-related disturbance activities commence anytime during the nesting/breeding season of native bird species potentially nesting on or near the study area (typically February through August in the project region), a pre-construction survey for nesting birds shall be conducted by a qualified biologist within two weeks of the commencement of construction activities.

If active nests are found in areas that could be directly affected or are within 300 feet of disturbance activities and would be subject to prolonged construction-related noise, a no-disturbance buffer zone shall be created around active nests during the breeding season or until a qualified biologist determines that all young have fledged. The size of the buffer zones and types of construction activities restricted within them shall be a minimum of 50 feet, and may be enlarged by taking into account factors such as the following:

- Noise and human disturbance levels at the construction site at the time of the survey and the noise and disturbance expected during the construction activity;
- Distance and amount of vegetation or other screening between the construction site and the nest; and
- Sensitivity of individual nesting species and behaviors of the nesting birds.

MM BIO-6 If proposed project activities take place during the Western red bat maternity roosting period between May 1 and August 31 (when pre-flight/nursing young may be present), then a qualified biologist will conduct a roosting habitat evaluation to assess potential roosting habitat in the study area.

If potential roosting habitat is identified in the roosting habitat evaluation, then a preconstruction maternity roost survey will be conducted within 3 days of equipment staging or initial ground disturbance. The survey will observe a 300-foot buffer around the project footprint to determine if a maternity roost is present, and to identify and map potential maternity roost sites. If active maternity roost sites are found, then a 300-foot no-disturbance buffer will be observed around potential maternity roost sites. The buffer will be maintained until bats have vacated the roost and Wildlife Agencies concur that the roost is vacant.

If project activities take place during the winter months (November 1 through March 31), then a qualified biologist will conduct a winter hibernaculum survey. If an active winter hibernaculum is found within 300 feet of the project footprint, then a 300-foot no disturbance buffer will be observed around the hibernaculum until the bats have vacated and the agencies concur that the hibernaculum is vacant.

Conclusion

Implementation of the above Avoidance and Minimization measures will reduce the project impacts to Special-Status Species to a less-than-significant level.

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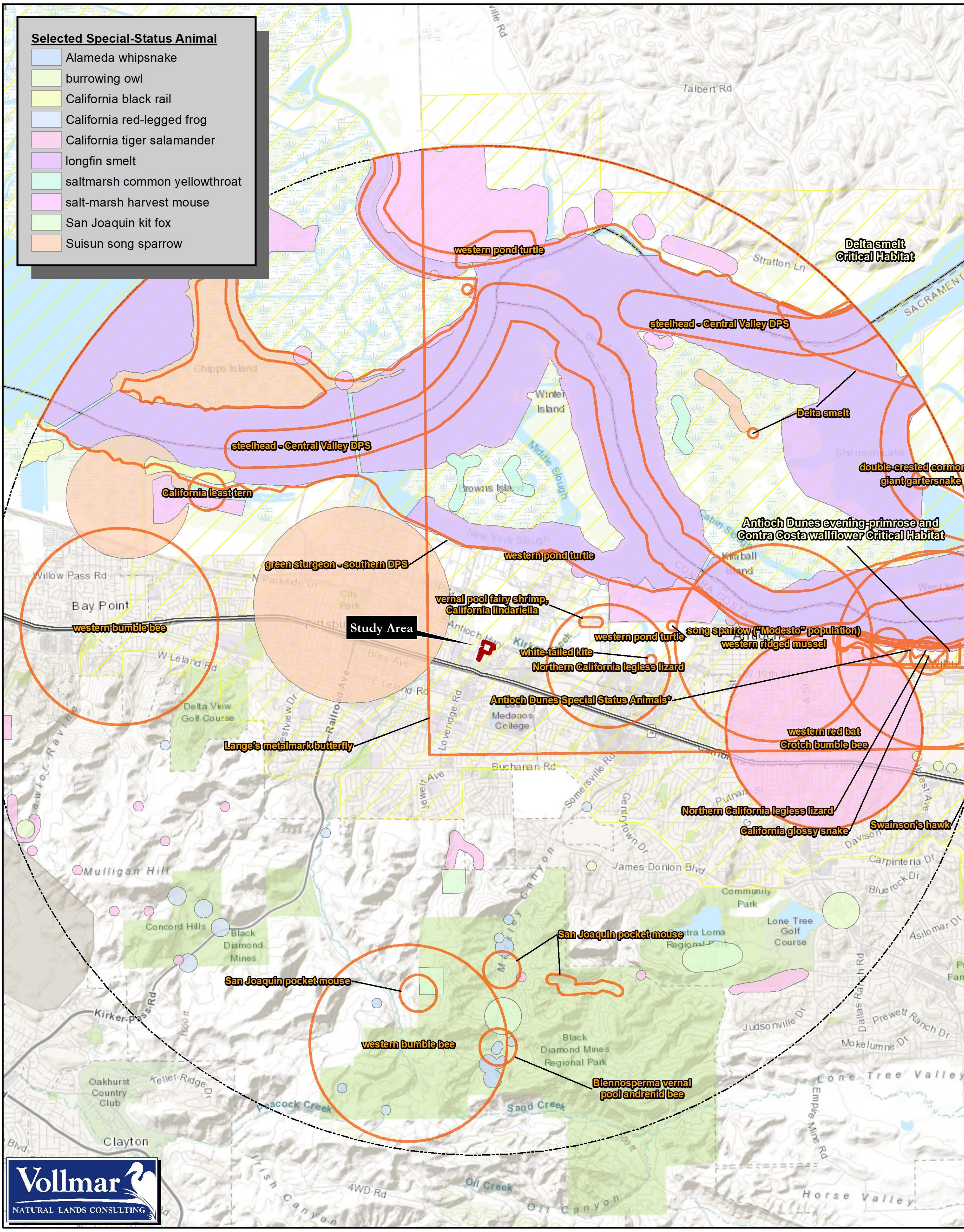
ATTACHMENT A: REGIONAL SPECIAL STATUS SPECIES MAPS



Legend

- Highway
- 5-mile Buffer
- Designated Critical Habitat
- Other Special-Status Animal
- Study Area (4.5 Acres)

*Antioch Dunes State Park Special-status Species include:
Antioch andrenid bee
Antioch Dunes anthicid beetle
Antioch Dunes halcitid bee
Antioch efferian robberfly
Antioch multilid wasp
Antioch specid wasp
Crotch bumble bee
Hurd's metapogon robberfly
Middlekauff's shieldback katydid
redheaded sphecid wasp
San Joaquin Valley giant flower-loving fly

Data Sources: CNDDB, 2023 | USFWS, 2017
USGS, Various | CRT, 2021 | GAP, 1998
GIS/Cartography by: G. Saron, August 2023
Map File: 594_CNDDB_B-P_2023-0824.mxd

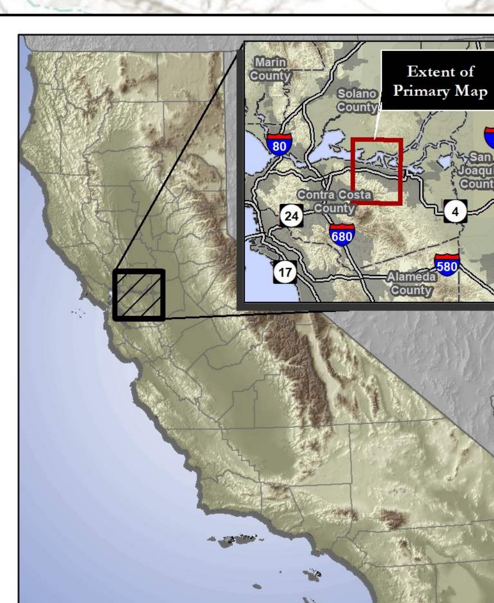
FIGURE 1
Regional Special-Status Animal Map

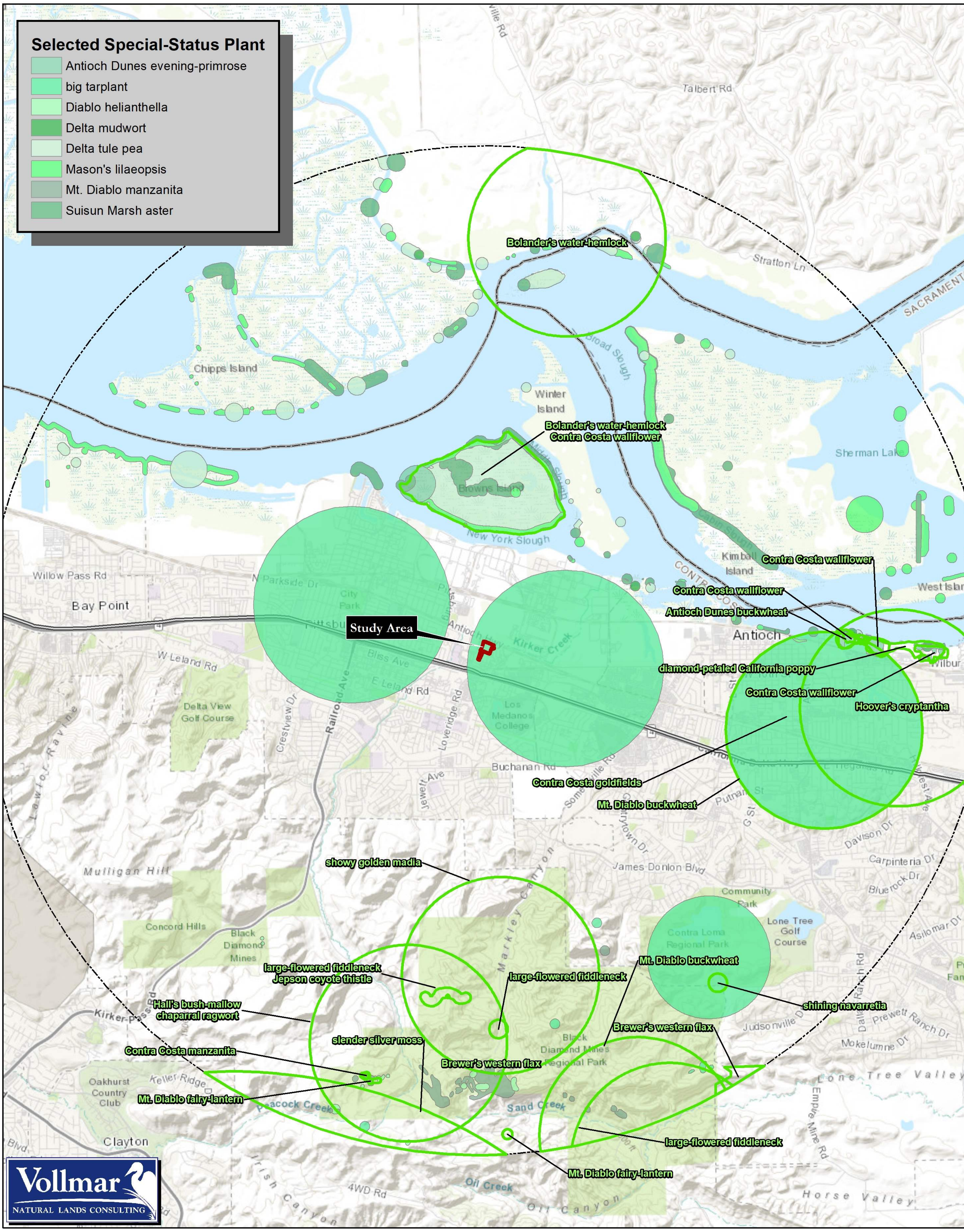
Oakstone North Expasion Project
Contra Costa County, California

N S E W

1:63,360
(1 inch = 1 mile at tabloid layout)

0 0.5 1 2 Km
0 0.5 1 2 Mi





Legend

- Highway
- 5-mile Buffer
- Other Special-Status Plant
- Study Area (4.5 Acres)

FIGURE 2
Regional Special-Status Plant Map

Oakstone North Expasion Project
Contra Costa County, California

N
W E
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1:63,360
(1 inch = 1 mile at tabloid layout)

0 0.5 1 2 Km

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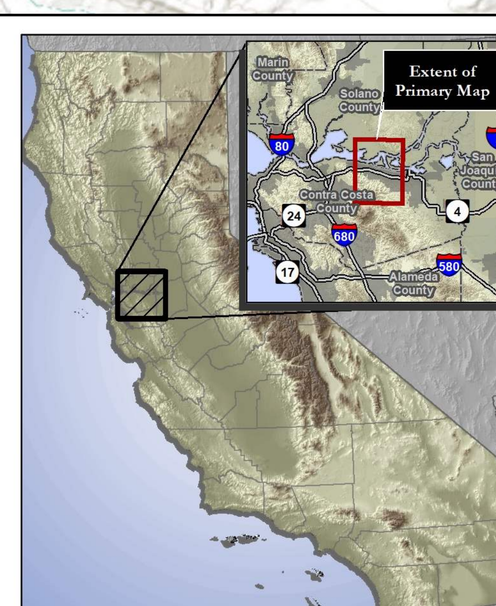


Data Sources: CNDDB, 2023 | USFWS, 2017
USGS, Various | CRT, 2021 | GAP, 1998
GIS/Cartography by: G. Saron, August 2023
Map File: 594_CNDDB_Plant_B-P_2023-0824.mxd

ATTACHMENT B:
IPAC Results

IPaC **U.S. Fish & Wildlife Service**

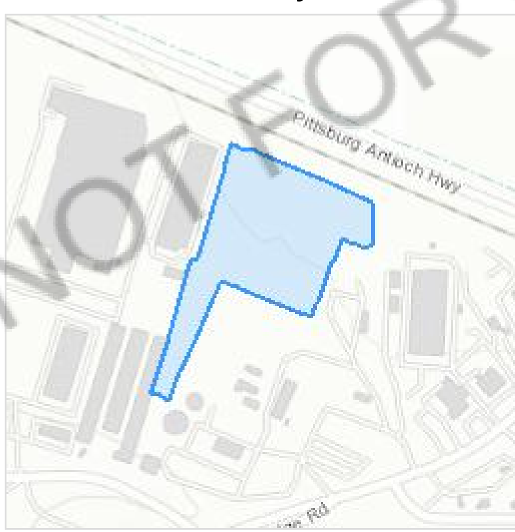
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Contra Costa County, California



Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. 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.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Salt Marsh Harvest Mouse Reithrodontomys raviventris Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/613	Endangered
San Joaquin Kit Fox Vulpes macrotis mutica Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2873	Endangered

Birds

NAME	STATUS
California Clapper Rail Rallus longirostris obsoletus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4240	Endangered
California Condor Gymnogyps californianus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8193	Endangered
California Least Tern Sterna antillarum browni Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8104	Endangered

Amphibians

NAME STATUS

California Red-legged Frog Rana draytonii Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander Ambystoma californiense There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2076	Threatened
Foothill Yellow-legged Frog Rana boylii No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5133	Proposed Threatened

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp Branchinecta lynchi Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp Lepidurus packardi Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2246	Endangered

Flowering Plants

NAME	STATUS

Colusa Grass Neostapfia colusana Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/5690	Threatened
Contra Costa Goldfields Lasthenia conjugens Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/7058	Endangered
Keck's Checker-mallow Sidalcea keckii Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/5704	Endangered
Soft Bird's-beak Cordylanthus mollis ssp. mollis Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8541	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

NAME	TYPE
Delta Smelt Hypomesus transpacificus For information on why this critical habitat appears for your project, even though Delta Smelt is not on the list of potentially affected species at this location, contact the local field office. https://ecos.fws.gov/ecp/species/321#crithab	Final

Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act.

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

Additional information can be found using the following links:

- Eagle Managment https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

There are bald and/or golden eagles in your project area.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list,click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Jan 1 to Aug 31
Golden Eagle Aquila chrysaetos This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

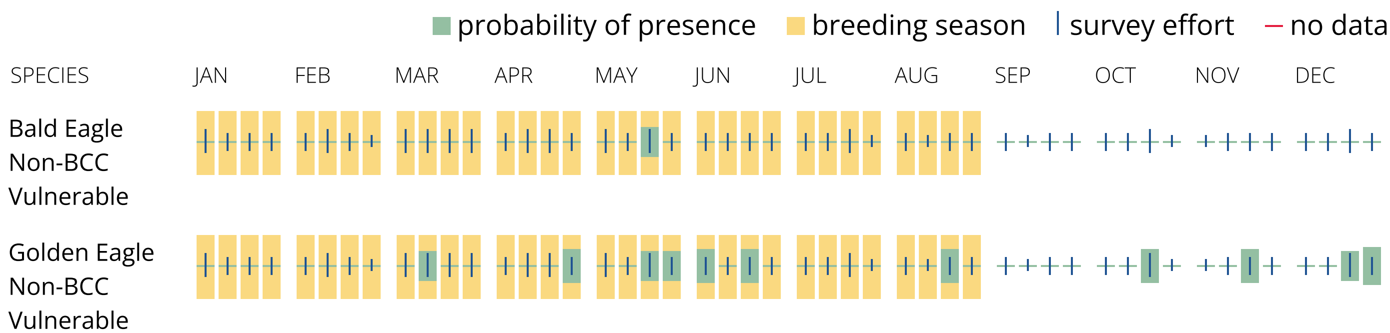
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON

Allen's Hummingbird Selasphorus sasin — Breeds Feb 1 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9637

Bald Eagle Haliaeetus leucocephalus — Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Belding's Savannah Sparrow Passerculus sandwichensis beldingi — Breeds Apr 1 to Aug 15

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/8

Bullock's Oriole Icterus bullockii — Breeds Mar 21 to Jul 25

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

California Gull Larus californicus — Breeds Mar 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

California Thrasher Toxostoma redivivum — Breeds Jan 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Common Yellowthroat Geothlypis trichas sinuosa — Breeds May 20 to Jul 31

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/2084

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Lawrence's Goldfinch Carduelis lawrencei | Breeds Mar 20 to Sep 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9464

Nuttall's Woodpecker Picoides nuttallii | Breeds Apr 1 to Jul 20

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Oak Titmouse Baeolophus inornatus | Breeds Mar 15 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Olive-sided Flycatcher Contopus cooperi | Breeds May 20 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Tricolored Blackbird Agelaius tricolor | Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3910

Wrentit Chamaea fasciata | Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season ()

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)

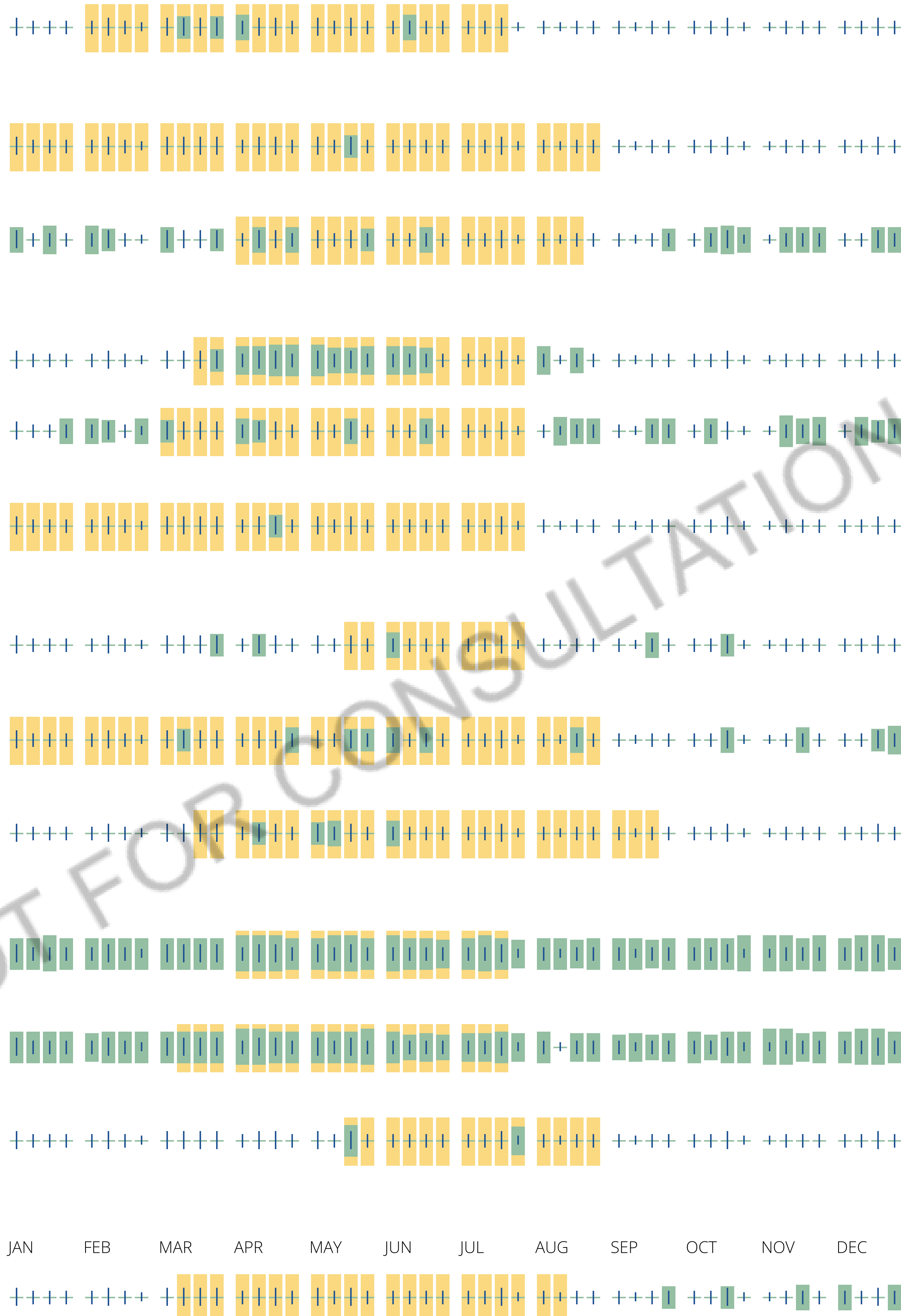
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

probability of presence breeding season | survey effort – no data

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC



Allen's Hummingbird
BCC Rangewide (CON)

Bald Eagle
Non-BCC Vulnerable

Belding's Savannah Sparrow
BCC - BCR

Bullock's Oriole
BCC - BCR

California Gull
BCC Rangewide (CON)

California Thrasher
BCC Rangewide (CON)

Common Yellowthroat
BCC - BCR

Golden Eagle
Non-BCC Vulnerable

Lawrence's Goldfinch
BCC Rangewide (CON)

Nuttall's Woodpecker
BCC - BCR

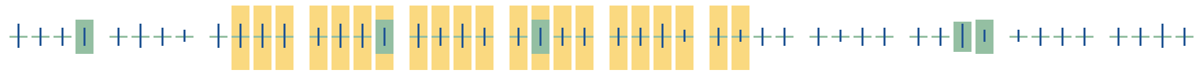
Oak Titmouse
BCC Rangewide (CON)

Olive-sided Flycatcher
BCC Rangewide (CON)

SPECIES JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

Tricolored Blackbird
BCC Rangewide (CON)

Wrentit
BCC Rangewide
(CON)



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

This location did not intersect any wetlands mapped by NWI.

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Application Form and Planning Survey Report

To Comply With and Receive Permit Coverage Under The East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan

Please complete this application to apply for take authorization under the state and federal East Contra Costa County HCP/NCCP incidental take permits. The East Contra Costa County Habitat Conservancy ("Conservancy") or local jurisdiction (City of Brentwood, City of Clayton, City of Oakley, City of Pittsburg, and Contra Costa County) may request more information in order to deem the application complete.

I. PROJECT OVERVIEW

PROJECT INFORMATION	
PROJECT NAME: Oakstone Northern California Expansion Project	
PROJECT TYPE: ☐ Residential ☒ Commercial ☐ Transportation ☐ Utility ☐ Other	
PROJECT DESCRIPTION (BRIEF): Construct a second air separation plant.	
PROJECT ADDRESS/LOCATION: 2000 Loveridge Rd, Pittsburg, CA 94565	
PARCEL/PROJECT SIZE (ACRES): 2.5 acres (estimated project permanent impact area); 7.2 acre (study area); 31.4 acres (entire parcel, includes 6.2 acres of HCP-mapped ruderal polygon, remaining area mapped as urban by HCP)	
PROJECT APN(S): 073-190-035	
APPLICATION SUBMITTAL DATE:	**FINAL PSR DATE:** (City/County/Conservancy use)
LEAD PLANNER: John Funderburg, Assistant Director of Planning **JURISDICTION:** ☐ City of Brentwood ☐ City of Clayton ☐ City of Oakley ☒ City of Pittsburg ☐ Contra Costa County ☐ Participating Special Entity* *Participating Special Entities are organizations not subject to the authority of a local jurisdiction. Such organizations may include school districts, irrigation districts, transportation agencies, local park districts, geological hazard abatement districts, or other utilities or special districts that own land or provide public services.	
DEVELOPMENT FEE ZONE: ☐ Zone I ☐ Zone II ☒ Zone III ☐ Zone IV See figure 9-1 of the HCP/NCCP at www.cocohcp.org for a generalized development fee zone map. Detailed development fee zone maps by jurisdiction are available from the jurisdiction.	

PROJECT APPLICANT INFORMATION	
APPLICANT'S NAME: Linde Inc	
AUTHORIZED AGENT'S NAME AND TITLE: Christian D. Lenci, Director of Capital, Productivity and Energy	
PHONE NO.: (480) 784-4112	**APPLICANT'S E-MAIL:** christian.lenci@linde.com
MAILING ADDRESS: 1620 W. Fountainhead Pkwy, Tempe, AZ 85282	

BIOLOGIST INFORMATION[1]	
BIOLOGICAL/ENVIRONMENTAL FIRM: Vollmar Natural Lands Consulting	
CONTACT NAME AND TITLE: Roxanne Foss, Senior Ecologist	
PHONE NO.: 510-559-9603	**CONTACT'S E-MAIL:** roxanne@vollmarconsulting.com
MAILING ADDRESS: 1720 Solano Ave, Berkeley, CA 94707	

[1] A USFWS/CDFW-approved biologist (project-specific) is required to conduct the surveys. Please submit biologist(s) approval request to the Conservancy.

II. PROJECT DETAILS

Please complete and/or provide the following attachments:

1) **Project Description**
   Attach as **Attachment A: Project Description**. Provide a detailed written description that concisely and completely describes the project and location. Include the following information:
   - All activities proposed for the site or project, including roads utilized, construction staging areas, and the installation of underground facilities, to ensure the entire project is covered by the HCP/NCCP permit
   - Proposed construction dates, including details on construction phases, if applicable
   - Reference a City/County application number for the project, if applicable
   - General Best Management Practices, if applicable
   - If the project will have temporary impacts, please provide a restoration plan describing how the site will be restored to pre-project conditions, including revegetation seed mixes or plantings and timing

2) **Project Vicinity Map**
   Provide a project vicinity map. Attach as **Figure 1** in **Attachment B: Figures**.

3) **Project Site Plans**
   Provide any project site plans for the project. Attach as **Figure 2** in **Attachment B: Figures**.

4) **CEQA Document**
   Indicate the status of CEQA documents prepared for the project. Provide additional comments below table if necessary.

Type of Document	Status	Date Completed
☐ Initial Study		
☐ Notice of Preparation		
☐ Draft EIR		
☐ Final EIR		
☐ Notice of Categorical Exemption		
☐ Notice of Statutory Exemption		
☐ Other (describe)		

Linde, Inc. will coordinate with the City of Pittsburg Planning Department to identify the CEQA review required for the project upon receiving the Planning Survey Report (PSR) and other initial studies of the site.

III. EXISTING CONDITIONS AND IMPACTS

Please complete and/or provide the following attachments:

1) **Field-Verified Land Cover Map**[2]
   Attach a field-verified land cover map in **Attachment B: Figures** and label as **Figure 3**. The map should contain all land cover types present on-site overlaid on aerial/satellite imagery. Map colors for the land cover types should conform to the HCP/NCCP (see *Figure 3-3: Landcover in the Inventory Area* for land cover type legend).

2) **Photographs of the Project Site**
   Attach representative photos of the project site in **Attachment B: Figures** and label as **Figure 4**. Please provide captions for each photo.

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[2] For PSEs and city or county public works projects, please also identify permanent and temporary impact areas by overlaying crosshatching (permanent impacts) and hatching (temporary impacts) on the land cover map.

3) Land Cover Types and Impacts and Supplemental Tables

- For all terrestrial land cover types please provide calculations to the nearest **hundredth of an acre (0.01)**. For aquatic land cover types please provide calculations to the nearest **thousandth of an acre (0.001)**.
- **Permanent Impacts** are broadly defined in the ECCC HCP/NCCP to include all areas removed from an undeveloped or habitat-providing state and includes land in the same parcel or project that is not developed, graded, physically altered, or directly affected in any way but is isolated from natural areas by the covered activity. Unless such undeveloped land is dedicated to the Preserve System or is a deed-restricted creek setback, the development mitigation fee will apply (if proposed, would require Conservancy approval).
- **Temporary Impacts** are broadly defined in the ECCC HCP/NCCP as any impact on vegetation or habitat that does not result in permanent habitat removal (i.e. vegetation can eventually recover).
- If **wetland (riparian woodland/scrub, wetland, or aquatic)** land cover types are present on the parcel but will not be impacted please discuss in the following section 4) Jurisdictional Wetlands and Waters. Wetland impact fees will only be charged if wetland features are impacted. However, development fees will apply to the entire parcel.
- **Stream** land cover type is considered a linear feature where impacts are calculated based on length impacted. The acreage within a stream, below Top of Bank (TOB), must be assigned to the adjacent land cover type(s). Insert area of impact to stream below TOB in parentheses after the Land Cover acreage number (e.g., Riparian Woodland/Scrub: 10 (0.036) – where 10 is the total impacted acreage including 0.036 acre, which is the acreage within stream TOB). Complete following supplemental **Stream Feature Detail** table to provide information for linear feet.
- **Total Impacts** acreage should be the total parcel acreage (development project) or project footprint acreage (rural infrastructure or utility project).

Table 1: Land Cover Types and Impacts

Land Cover Type	Permanent Impacts	Temporary Impacts	*Proposed for HCP/NCCP Dedication on the Parcel (Requires Conservancy Approval)*	
			Stream Setback	*Preserve System Dedication*
Grassland				
Annual Grassland				
Alkali Grassland				
Ruderal	1.86	0.62		
Shrubland				
Chaparral and Scrub				
Woodland				
Oak Savannah				
Oak Woodland				
Riparian				
Riparian Woodland/Scrub				
Wetland				
Permanent Wetland				
Seasonal Wetland				
Alkali Wetland				
Aquatic				
Aquatic (Reservoir/Open Water)				
Slough/Channel				
Pond				
Stream (in linear feet)	-	-	-	-
Irrigated Agriculture				
Pasture				
Cropland				
Orchard				
Vineyard				
Other				
Nonnative woodland		0.11		
Wind turbines				
Developed (not counted toward Fees)				
Urban	0.49			
Aqueduct				
Turf				
Landfill				
TOTAL IMPACTS	2.35	0.73	-	-

Identify any uncommon vegetation and uncommon landscape features[3]:

Supplemental to Table 1: Uncommon Vegetation and Landscape Features

	Permanent Impacts	Temporary Impacts
Uncommon Grassland Alliances		
Purple Needlegrass Grassland		
Blue Wildrye Grassland		
Creeping Ryegrass Grassland		
Wildflower Fields		
Squirreltail Grassland		
One-sided Bluegrass Grassland		
Serpentine Bunchgrass Grassland		
Saltgrass Grassland		
Alkali Sacaton Bunchgrass Grassland		
☐ Other		
Uncommon Landscape Features		
Rock Outcrops		
Caves		
Springs and seeps		
Scalds		
Sand Deposits		
☐ Mines[4]		
☐ Buildings (bat roosts)[3]		
☐ Potential nest sites (trees or cliffs)[3]		

Please provide details of impacts to stream features:

Stream Name: Unnamed anthropogenic drainage features that connect to Los Medanos Wasteway

Watershed: Kirker Creek

Supplemental to Table 1: Stream Feature Detail[5]

Stream Width	Stream Type[6]	Permanent Impacts (linear feet)[7]	Temporary Impacts (linear feet)[7]
☒ ≤ 25 feet wide ☐ > 25 feet wide	☐ Perennial ☐ Intermittent ☐ Ephemeral, 3rd or higher order ☒ Ephemeral, 1st or 2nd order	0	0
☐ ≤ 25 feet wide ☐ > 25 feet wide	☐ Perennial ☐ Intermittent ☐ Ephemeral, 3rd or higher order ☐ Ephemeral, 1st or 2nd order		
☐ ≤ 25 feet wide ☐ > 25 feet wide	☐ Perennial ☐ Intermittent ☐ Ephemeral, 3rd or higher order ☐ Ephemeral, 1st or 2nd order		

[3] These acreages are for Conservancy tracking purposes. Impacts to these uncommon vegetation and landscape features should be accounted for within the land cover types in Table 1 (e.g., x acres of purple needlegrass in this supplemental table should be accounted for within annual grassland in Table 1).
[4] Insert amount/number, not acreage. Provide additional information on these features in Attachment A: Project Description.
[5] Use more than 1 row as necessary to describe impacts to streams on site.
[6] See glossary (Appendix A) for definition of stream type and order.
[7] Stream length is measured along stream centerline, based on length of impact to any part of the stream channel, TOB to TOB.

4) Summary of Land Cover Types

Please provide a written summary of descriptions for land cover types found on site including characteristic vegetation.

Urban: The urban cover in the study area consists of the paved parking lot in the south and the previously developed infrastructure to the east. Approximately 0.49 acres would be permanently impacted.

Non-native Woodland: The southwest border was lined with planted horticultural black poplar (*Populus nigra*) and coast redwood (*Sequoia sempervirens*) along the fenceline. These trees were apparently planted along the boundary and the understory is consistent with the adjacent ruderal habitat type. The temporary impact area continues into the dripline of the existing trees. Approximately 0.11 acres will be temporarily impacted, although no tree removal is anticipated.

Ruderal: The study area is dominated by ruderal non-native annual grassland (Ruderal Grassland). The habitat type was dominated by wild oats (*Avena fatua*), ripgut brome (*Bromus diandrus*), with prickly lettuce (*Lactuca serriola*), bristly ox-tongue (*Helminthotheca echioides*), Italian thistle (*Carduus pycnocephalus*), mustard (*Brassica* sp.), vetch (*Vicia sativa*), and hairy vetch (*Vicia villosa*) as sub dominants with occasional patches of fennel (*Foeniculum vulgare*), yellow star thistle (*Centaurea solstitialis*), and Harding grass (*Phalaris aquatica*). Small areas near the northern drainage featured patches of coyote brush (*Baccharis pilularis*) and creeping wildrye (*Elymus triticoides*). Small isolated individual trees, typically coast live oak (*Quercus agrifolia*) and hybrid walnut (*Juglans hindsii x regia*), were included in this habitat type. Approximately 1.86 acres of ruderal grassland habitat type will be permanently impacted and approximately 0.62 acres will be temporarily impacted.

Wetland: Three wetlands were observed within the study area: one seasonal wetland along the east side of the railroad, one seasonal wetland in the northwest corner and one perennial wetland along a north-south drainage feature on the western side of the study area. No impacts to wetlands are anticipated.

The eastern seasonal wetland (Wetland 3 in the 2018 wetland delineation) was largely bare with soil cracks and included bristly ox-tongue, alkali mallow (*Malvella leprosa*), and yellow star thistle. This wetland appears to have expanded since the 2018 delineation, likely due to the difference in the dry 2018 survey and the unusually wet 2023 seasons. The plant community also appears to have shifted to a more ruderal plant community.

The northwestern seasonal wetland was dominated by Italian ryegrass (*Festuca perennis*) with lower cover of curly dock (*Rumex crispus*), Harding grass and bristly ox tongue. A straw wattle was observed just outside the eastern boundary of the seasonal wetland. Both wetlands appear enhanced by the presence of the railroad and likely receive water from heavy flow events in the main drainage system. No impacts to seasonal wetlands are anticipated.

The western perennial wetland drainage flows northwards from a culvert in the south to a culvert under the railroad and into an unnamed drainage described under Aquatic (Other waters). The perennial wetland drainage consisted almost entirely of narrow-leaf cattail (*Typha* angustifolia), with a few English walnut (*Junglans regia* x *hindsii*) and black poplar individuals. Disturbance-tolerant upland and facultative wetland species such as bristly ox-tongue (*Helminthotheca echioides*), tall flatsedge (, rabbitsfoot grass (*Polypogon monspeliensis*), curly dock (*Rumex crispus*), orchardgrass (*Dactylis glomerata*), perennial pepperweed (*Lepidium latifolium*), and Harding grass (*Phalarus aquatica*) occur along some margins.

Aquatic (Other waters): Two drainages in the study area lacked seasonal or perennial wetland characteristics but conveyed water: a drainage in the north (draining east to the Los Medanos Wasteway) and a small ephemeral drainage flowing into the perennial wetland drainage in the west. No impacts to aquatic other waters are anticipated.

The northern drainage featured sections dominated by herbaceous vegetation, such as Harding grass, tall flatsedge, and curly dock. Associated riparian woodland/scrub areas are described in the separate section.

The small drainage was dominated by annual ruderal vegetation, including wild oats, ripgut brome and hairy vetch with a patch of Himalayan blackberry (*Rubus armeniacus*). The western ephemeral drainage was dominated by ruderal upland vegetation and lacked wetland soils (draining east from a culvert to a perennial wetland).

The majority of the water (including all water from wetlands and aquatic other waters) that flows through the study site flows towards the Los Medanos Wasteway with the exception of a small, manmade sediment basin in the southeast portion of the study area which lacks vegetation or hydric soils. It appears industrial waste water flows through the basin to a culvert in the corner of the development. This was identified as ruderal both this analysis and the 2019 PSR, and classified as a non-wetland in the 2018 wetland delineation.

Riparian Woodland/Scrub: Portions of the northern other waters drainage featured sections dominated by Himalayan blackberry) with scattered regenerating riparian trees, including hybrid walnut and Fremont cottonwood (*Populus fremontii*). The understory is characterized by Harding grass, tall flatsedge, perennial pepperweed, and orchard grass. As noted in the 2019 PSR, this area had previously supported larger stands of riparian vegetation. However, a fire prior to the survey killed the mature trees, which were observed as piles of cut logs in the vicinity. A dilapidated fence lines the south side of the northern drainage. No impacts to riparian woodland/scrub are anticipated.

5) Jurisdictional Wetlands and Waters

If wetlands and waters are present on the project site, project proponents must conduct a delineation of jurisdictional wetlands and waters. Jurisdictional wetlands and waters are defined on pages 1-18 and 1-19 of the ECCC HCP/NCCP as the following land cover types: permanent wetland, seasonal wetland, alkali wetland, aquatic, pond, slough/channel, and stream. It should be noted that these features differ for federal and state jurisdictions. If you have identified any of these land cover types in Table 1, complete the section below.

a) Attach the wetland delineation report as **Attachment E: Wetland Delineation.** If a wetland delineation has not been completed, please explain below in section 4c.

b) Please check the following permits the project may require. Please submit copies of these permits to the Conservancy prior to the start of construction:

☐ CWA Section 404 Permit[8]   ☐ CWA Section 401 Water Quality Certification

☐ Waste Discharge Requirements   ☐ Lake and Streambed Alteration Agreement

c) Provide any additional information on impacts to jurisdictional wetland and waters below, including status of the permit(s):

The project will avoid jurisdictional wetlands and waters. A previous delineation of the permanent impact area and adjacent lands was conducted in 2018 and submitted with a 2019 PSR. Some adjustments to the wetland boundaries were observed during the 2023 planning survey: the Wetland 3 expanded (likely due to high rainfall year); riparian vegetation shifted after regenerating from a fire; and additional aquatic features were noted in unsurveyed lands to the west. The land cover map for this PSR depicts preliminary information on aquatic habitat types in areas that were not included in the 2018 wetland delineation. The applicant is avoiding informally documented aquatic features noted in the current land cover map, although no formal delineation of the areas west of the railroad tracks has been conducted.

[8] The USACE Sacramento District issued a Regional General Permit 1 (RGP) related to ECCC HCP/NCCP covered activities. The RGP is designed to streamline wetland permitting in the entire ECCC HCP/NCCP Plan Area by coordinating the avoidance, minimization, and mitigation measures in the Plan with the Corps' wetland permitting requirement. Applicants seeking authorization under this RGP shall notify the Corps in accordance with RGP general condition number 18 (Notification).

6) Species-Specific Planning Survey Requirements

Based on the land cover types found on-site and identified in Table 1, check the applicable boxes in Table 2a.

Table 2a. Species –Specific Planning Survey Requirements

Land Cover Type in Project Area	Required Survey Species	Habitat Element in Project Area	Planning Survey Requirement[9]	Info in HCP
☒ Grasslands, oak savannah, agriculture, or ruderal	☐ San Joaquin kit fox	Assumed if within modeled range of species	If within modeled range of species, identify and map potential breeding or denning habitat within the project site and a 250-ft radius around the project footprint.	pp. 6-37 to 6-38
	☒ Western burrowing owl	Assumed	Identify and map potential breeding habitat within the project site and a 500-ft radius around the project footprint. Please note the HCP requires buffers for occupied burrows. Surveys may need to encompass an area larger than the project footprint.	pp. 6-39 to 6-41
☒ Aquatic (ponds, wetlands, streams, sloughs, channels, and marshes)	☐ Giant garter snake	Aquatic habitat accessible from the San Joaquin River	Identify and map potential habitat.	pp. 6-43 to 6-45
	☐ California tiger salamander	Ponds and wetlands Vernal pools Reservoirs Small lakes	Identify and map potential breeding habitat. Document habitat quality and features. Provide the Conservancy with photo-documentation and report.	pp. 6-45
	☐ California red-legged frog	Slow-moving streams, ponds and wetlands	Identify and map potential breeding habitat. Document habitat quality and features. Provide the Conservancy with photo-documentation and report.	p. 6-46
	☐ Covered shrimp	Seasonal wetlands Vernal pools Sandstone rock outcrops Sandstone depressions	Identify and map potential habitat. Please note the HCP requires a 50 foot non-disturbance buffer from seasonal wetlands that may be occupied by covered shrimp. Surveys may need to encompass an area larger than the project footprint.	pp. 6-46 to 6-48
☒ Any	☐ Townsend's big-eared bat	Rock formations with caves Mines Abandoned buildings outside urban area	Map and document potential breeding or roosting habitat.	pp. 6-36 to 6-37
	☒ Swainson's hawk	Potential nest sites within 1,000 feet of project	Inspect large trees for presence of nest sites. Document and map.	pp. 6-41 to 6-43
	☒ Golden Eagle	Potential nest sites with ½ mile of project	Inspect large trees for presence of nest sites. Document and map.	pp. 6-38 to 6-39

Surveys for all covered species must be conducted by a qualified biologist (USFWS/CDFW project-specific approved). Please submit biologist approval request to the East Contra Costa County Habitat Conservancy.
Surveys for all covered species must be conducted according to the respective USFWS or CDFW survey protocols, as identified in Chapter 6.4.3 in the HCP/NCCP.

7) Planning Survey Species Habitat Maps

Provide Planning Survey Species Habitat Maps as required in Table 2a, attach as **Figure 5** in **Attachment B: Figures**.

[9] The planning survey requirements in this table are not comprehensive. Please refer to Chapter 6.4.3 in the ECCC HCP/NCCP for more detail.

8) **Results of Species Specific Surveys**
Provide a written summary describing the results of the planning surveys. Please discuss the location, quantity, and quality of suitable habitat for specified covered wildlife species on the project site.

Ms. Roxanne Foss, Vollmar Natural Lands Consulting Senior Ecologist, conducted a planning survey by foot with binoculars on 6/23/23. A portion of the study area was surveyed by Judy Bendix of Mosaic Associates on 6/19/19, 9/19/17, and 2/14/18. No special-status species were observed during any planning surveys.

Ruderal grassland: The occurrence of ruderal grassland habitat within the study area automatically requires planning surveys for western burrowing owl. No further planning or preconstruction surveys are required for San Joaquin kit fox as the study area is outside of modelled range for the species. No ground squirrel or other fossorial mammal burrows were observed within the study area. Previously observed burrows were no longer present, likely due to lack of regular mowing or grazing in past years. No rubble piles were present during the 2023 field survey. While the ruderal habitat may provide foraging habitat for burrowing owl, the lack of burrows or rubble, high herbaceous vegetation height (up to 3 or 4 feet) and numerous surrounding raptor perches dramatically decrease the suitability of the site for burrowing owl.

Aquatic/Wetland: The study area includes multiple created drainage features that connect to Los Medanos Wasteway, and two separate but associated seasonal wetlands. California red-legged frog occurrences have been documented in more natural habitat south of Pittsburg. The onsite drainages do not provide pools suitable for California red-legged frog breeding. Any individuals that may incidentally flow through the culverts through developed landscapes to the study area would likely be impacted by heavy predator populations in downstream environments. The study area is outside of core giant garter snake habitat and is not suitable for movement or foraging of this species. There is also no suitable breeding, migration or upland habitat for California tiger salamander within the study area.

Nest Sites: Mature trees, generally Fremont cottonwood, black poplar and various *Eucalyptus* trees, occur along the western boundary and outside of the study area. The trees follow the property boundary and are immediately adjacent to industrial facilities with frequent loud noises and high levels of human visitation. North of the study area, the Los Medanos Wasteway supports a line of riparian trees that follow the busy Pittsburg-Antioch Highway. The study area and a solar farm property to the north of the Pittsburg-Antioch Highway have limited open grassland habitat for raptor foraging. The only raptor observed during the 2023 survey was one American kestrel (*Falco sparverius*) which perched on a palm tree just outside the study area. A few large mature red gum (*Eucalyptus camaldulensis*) trees were observed to the east and south of the site within the ½-mile golden eagle buffer but both were surrounded by industrial or residential development and were close to heavily trafficked areas. The highly industrialized and developed project vicinity has limited poor quality suitable nesting or foraging habitat for Swainson's hawk or golden eagle nests.

Other: No caves or buildings outside of the urban area occur within or near the study area; therefore, Townsend's big eared bat is not expected.

9) **Covered and No-Take Plants**
Please check the applicable boxes in Table 2b based on the land cover types found in the project area. If suitable land cover types are present on site, surveys must be conducted using approved CDFW/USFWS methods during the appropriate season for identification of covered and no-take species (see page 6-9 of the ECCC HCP/NCCP). Reference populations of covered and no-take plants should be visited, where possible, prior to conducting surveys to confirm that the plant species is visible and detectable at the time surveys are conducted. <u>In order to complete all the necessary covered and no-take plant surveys, spring, summer, and fall surveys may be required.</u>

Table 2b. Covered and No-Take Plant Species

Plant Species	Covered (C) or No-Take (N)	Associated Land Cover Type	Typical Habitat or Physical Conditions, if Known	Typical Blooming Period	Suitable Land Cover Type Present
Adobe navarretia (*Navarretia nigelliformis* ssp. *radians*) [a]	C	Annual Grassland	Generally found on clay barrens in Annual Grassland [b]	Apr–Jun	☐ Yes ☒ No
Alkali milkvetch (*Astragalus tener* ssp. *tener*)	N	Alkali grassland Alkali wetland Annual grassland Seasonal wetland	Generally found in vernally moist habitat in soils with a slight to strongly elevated pH	Mar–Jun	☐ Yes ☒ No
Big tarplant (*Blepharizonia plumosa*)	C	Annual grassland	Elevation below 1500 feet [d] most often on Altamont Series or Complex soils	Jul–Oct	☐ Yes ☒ No
Brewer's dwarf flax (*Hesperolinon breweri*)	C	Annual grassland Chaparral and scrub Oak savanna Oak woodland	Generally, restricted to grassland areas within a 500+ buffer from oak woodland and/or chaparral/scrub [d]	May–Jul	☐ Yes ☒ No
Brittlescale (*Atriplex depressa*)	C	Alkali grassland Alkali wetland	Restricted to soils of the Pescadero or Solano soil series; generally found in southeastern region of plan area [d]	May–Oct	☐ Yes ☒ No
Caper-fruited tropidocarpum (*Tropidocarpum capparideum)*	N	Alkali grassland		Mar–Apr	☐ Yes ☒ No
Contra Costa goldfields (*Lasthenia conjugens*)	N	Alkali grassland Alkali wetland Annual grassland Seasonal wetland	Generally found in vernal pools	Mar–Jun	☐ Yes ☒ No
Diablo Helianthella (*Helianthella castanea*)	C	Chaparral and scrub Oak savanna Oak woodland	Elevations generally above 650 feet [d]	Mar–Jun	☐ Yes ☒ No
Diamond-petaled poppy (*Eschscholzia rhombipetala*)	N	Annual grassland		Mar–Apr	☐ Yes ☒ No
Large-flowered fiddleneck (*Amsinckia grandiflora*)	N	Annual grassland	Generally on clay soil	Apr–May	☐ Yes ☒ No
Mount Diablo buckwheat (*Eriogonum truncatum*)	N	Annual grassland Chaparral and scrub	Ecotone of grassland and chaparral/scrub	Apr–Sep	☐ Yes ☒ No
Mount Diablo fairy-lantern (*Calochortus pulchellus*)	C	Annual grassland Chaparral and scrub Oak savanna Oak woodland	Elevations generally between 650 and 2,600[d]	Apr–Jun	☐ Yes ☒ No
Mount Diablo Manzanita (*Arctostaphylos auriculata*)	C	Chaparral and scrub	Elevations generally between 700 and 1,860 feet; restricted to the eastern and northern flanks of Mt. Diablo [d] and the vicinity of Black Diamond Mines	Jan–Mar	☐ Yes ☒ No
Recurved larkspur (*Delphinium recurvatum*)	C	Alkali grassland Alkali wetland		Mar–Jun	☐ Yes ☒ No
Round-leaved filaree (*California macrophylla*) [c]	C	Annual grassland		Mar–May	☐ Yes ☒ No
San Joaquin spearscale (*Extriplex joaquiniana*) [e]	C	Alkali grassland Alkali wetland		Apr–Oct	☐ Yes ☒ No
Showy madia (*Madia radiata*)	C	Annual grassland Oak savanna Oak woodland	Primarily occupies open grassland or grassland on edge of oak woodland	Mar–May	☐ Yes ☒ No

[a] The species *Navarretia nigelliformis* subsp. *nigelliformis* is no longer considered to occur within Contra Costa County based on specimen annotations at the UC and Jepson Herbaria at the University of California Berkeley as well as the opinions of experts in the genus. This taxon is now recognized as *Navarretia nigelliformis* subsp. *radians.* Any subspecies of *Navarretia nigelliformis* encountered as a part of botanical surveys in support of a PSR should be considered as covered under this HCP/NCCP.

[b] Habitat for the *Navarretia nigelliformis* subspecies that occurs within the inventory are is inaccurately described in the HCP/NCCP as vernal pools. The entity within the Inventory generally occupies clay barrens within Annual Grassland habitat, which is an upland habitat type.

[c] From California Native Plant Society. 2007. *Inventory of Rare and Endangered Plants* (online edition, v7-07d). Sacramento, CA. Species may be identifiable outside of the typical blooming period; a professional botanist shall determine if a covered or no take plant occurs on the project site. Reference population of covered and no-take plants should be visited, where possible, prior to conducting surveys to confirm that the plant is visible and detectable at the time surveys are conducted.

[d] See Species Profiles in Appendix D of the Final HCP/NCCP. Reference populations of covered and no-take plants should be visited, where possible, prior to conducting surveys to confirm that the plant species is visible and detectable at the time surveys are conducted.

[e] In the recent update to the Jepson eflora (JFP 2013) *Atriplex joaquinana* has been circumscribed and segregated into a new genus called *Extriplex* based on the work of Elizabeth Zacharias and Bruce Baldwin (2010). The etymology of the genus *Extriplex* means, "beyond or outside Atriplex".

10) Results of Covered and No-Take Plant Species

Provide a written summary describing the results of the planning surveys conducted as required in Table 2b. Describe the methods used to survey the site for all covered and no-take plants, including the dates and times of all surveys conducted (see Tables 3-8 and 6-5 of the ECCC HCP/NCCP for covered and no-take plants), including reference populations visited prior to conducting surveys.

If any covered or no-take plant species were found, include the following information in the results summary:

- Description and number of occurrences and their rough population size.
- Description of the "health" of each occurrence, as defined on pages 5-49 and 5-50 of the HCP/NCCP.
- A map of all the occurrences.
- Justification of surveying time window, if outside of the plant's blooming period.
- The CNDDB form(s) submitted to CDFW (if this is a new occurrence).
- A description of the anticipated impacts that the covered activity will have on the occurrence and how the project will avoid impacts to all covered and no-take plant species. If impacts to covered plant species cannot be avoided and plants will be removed by covered activity, the Conservancy must be notified and has the option to salvage the covered plants. All projects must demonstrate avoidance of all six no-take plants (see table 6-5 of the HCP/NCCP).

No covered or no-take plant taxa have potential to occur within the study area due to history of disking and mowing, dominance of ruderal and invasive plant taxa habituated to disturbance. The surveyor walked throughout the study area and examined all habitat types. No further planning surveys or preconstruction surveys are necessary.

IV. SPECIES-SPECIFIC AVOIDANCE AND MINIMIZATION REQUIREMENTS

Please complete and/or provide the following attachments:

1) **Species-Specific Avoidance and Minimization for Selected Covered Wildlife**
Complete the following table and check the applicable box for covered species determined by the planning surveys.

Table 3. Summary of Applicable Preconstruction Surveys, Avoidance and Minimization, and Construction Monitoring Requirements[10]

Species	Preconstruction Survey Requirements	Avoidance and Minimization Requirements	Construction Monitoring Required	Info in HCP
☐ San Joaquin kit fox	• On project footprint and 250-ft radius, map all dens (>5 in. diameter) and determine status • Provide written survey results to USFWS within 5 working days after surveying	• Monitor dens • Destroy unoccupied dens • Discourage use of occupied (non-natal) dens	• Establish exclusion zones (>50 ft for potential dens, and >100 ft for known dens) • Notify USFWS of occupied natal dens	pp. 6-37 to 6-38
☒ Western burrowing owl	• On project footprint and 500-ft radius, identify and map all owls and burrows, and determine status • Document use of habitat (e.g. breeding, foraging)	• Avoid occupied nests during breeding season (Feb-Sep) • Avoid occupied burrows during nonbreeding season (Sep – Feb) • Install one-way doors in occupied burrow (if avoidance not possible) • Monitor burrows with doors installed	• Establish buffer zones (250 ft around nests) • Establish buffer zones (160 ft around burrows)	pp. 6-39 to 6-41
☐ Giant garter snake	• Delineate aquatic habitat up to 200 ft from water's edge on each side • Document any occurrences	• Limit construction to Oct-May • Dewater habitat April 15 – Sep 30 prior to construction • Minimize clearing for construction	• Delineate 200 ft buffer around potential habitat near construction • Provide field report on monitoring efforts • Stop construction activities if snake is encountered; allow snake to passively relocate • Remove temporary fill or debris from construction site • Mandatory training for construction personnel	pp. 6-43 to 6-45
☐ California tiger salamander	• Provide written notification to USFWS and CDFW regarding timing of construction and likelihood of occurrence on site	• Allow agency staff to translocate species, if requested	• None	p. 6-45
☐ California red-legged frog	• Provide written notification to USFWS and CDFW regarding timing of construction and likelihood of occurrence on site	• Allow agency staff to translocate species, if requested	• None	p. 6-46
☐ Covered shrimp	• Establish presence/absence • Document and evaluate use of all habitat features (e.g. vernal pools, rock outcrops)	• Establish buffer near construction activities • Prohibit incompatible activities	• Establish buffer around outer edge of all hydric vegetation associated with habitat (50 ft or immediate watershed, whichever is larger) • Mandatory training for construction personnel	pp. 6-46 to 6-48
☐ Townsend's big-eared bat	• Establish presence/absence • Determine if potential sites were recently occupied (guano)	• Seal hibernacula before Nov • Seal nursery sites before April • Delay construction near occupied sites until hibernation or nursery seasons are over	• None	pp. 6-36 to 6-37
☒ Swainson's hawk	• Determine whether potential nests are occupied	• No construction within 1,000 ft of occupied nests within breeding season (March 15 - Sep 15) • If necessary, remove active nest tree after nesting season to prevent occupancy in second year.	• Establish 1,000 ft buffer around active nest and monitor compliance (no activity within established buffer)	pp. 6-41 to 6-43
☒ Golden Eagle	• Establish presence/absence of nesting eagles	• No construction within ½ mile near active nests (most activity late Jan – Aug)	• Establish ½ mile buffer around active nest and monitor compliance with buffer	pp. 6-38 to 6-39

[10] The requirements in this table are not comprehensive; they are detailed in the next section on the following page.

2) Required Preconstruction Surveys, Avoidance and Minimization, and Construction Monitoring

All preconstruction surveys shall be conducted in accordance with the requirements set forth in Section 6.4.3, Species-Level Measures, and Table 6-1 of the ECCC HCP/NCCP. Detailed descriptions of preconstruction surveys, avoidance and minimization, and construction monitoring applicable to each of the wildlife species in Table 3 are located below. Please remove the species-specific measures that do not apply to your project (highlight entire section and delete).

WESTERN BURROWING OWL

Preconstruction Surveys

Prior to any ground disturbance related to covered activities, a USFWS/CDFW- approved biologist will conduct a preconstruction survey in areas identified in the planning surveys as having potential burrowing owl habitat. The surveys will establish the presence or absence of western burrowing owl and/or habitat features and evaluate use by owls in accordance with CDFW survey guidelines (California Department of Fish and Game 1995).

On the parcel where the activity is proposed, the biologist will survey the proposed disturbance footprint and a 500-foot radius from the perimeter of the proposed footprint to identify burrows and owls. Adjacent parcels under different land ownership will not be surveyed. Surveys should take place near sunrise or sunset in accordance with CDFW guidelines. All burrows or burrowing owls will be identified and mapped. Surveys will take place no more than 30 days prior to construction. During the breeding season (February 1– August 31), surveys will document whether burrowing owls are nesting in or directly adjacent to disturbance areas. During the nonbreeding season (September 1–January 31), surveys will document whether burrowing owls are using habitat in or directly adjacent to any disturbance area. Survey results will be valid only for the season (breeding or nonbreeding) during which the survey is conducted.

Avoidance and Minimization and Construction Monitoring

This measure incorporates avoidance and minimization guidelines from CDFW's *Staff Report on Burrowing Owl Mitigation* (California Department of Fish and Game 1995).

If burrowing owls are found during the breeding season (February 1 – August 31), the project proponent will avoid all nest sites that could be disturbed by project construction during the remainder of the breeding season or while the nest is occupied by adults or young. Avoidance will include establishment of a non-disturbance buffer zone (described below). Construction may occur during the breeding season if a qualified biologist monitors the nest and determines that the birds have not begun egg-laying and incubation or that the juveniles from the occupied burrows have fledged. During the nonbreeding season (September 1 – January 31), the project proponent should avoid the owls and the burrows they are using, if possible. Avoidance will include the establishment of a buffer zone (described below).

During the breeding season, buffer zones of at least 250 feet in which no construction activities can occur will be established around each occupied burrow (nest site). Buffer zones of 160 feet will be established around each burrow being used during the nonbreeding season. The buffers will be delineated by highly visible, temporary construction fencing.

If occupied burrows for burrowing owls are not avoided, passive relocation will be implemented. Owls should be excluded from burrows in the immediate impact zone and within a 160-foot buffer zone by installing one-way doors in burrow entrances. These doors should be in place for 48 hours prior to excavation. The project area should be monitored daily for 1 week to confirm that the owl has abandoned the burrow. Whenever possible, burrows should be excavated using hand tools and refilled to prevent reoccupation (California Department of Fish and Game 1995). Plastic tubing or a similar structure should be inserted in the tunnels during excavation to maintain an escape route for any owls inside the burrow.

SWAINSON'S HAWK

Preconstruction Survey

Prior to any ground disturbance related to covered activities that occurs during the nesting season (March 15–September 15), a qualified biologist will conduct a preconstruction survey no more than 1 month prior to construction to establish whether Swainson's hawk nests within 1,000 feet of the project site are occupied. If potentially occupied nests within 1,000 feet are off the project site, then their occupancy will be determined by observation from public roads or by observations of Swainson's hawk activity (e.g., foraging) near the project site. If nests are occupied, minimization measures and construction monitoring are required (see below).

Avoidance and Minimization and Construction Monitoring

During the nesting season (March 15–September 15), covered activities within 1,000 feet of occupied nests or nests under construction will be prohibited to prevent nest abandonment. If site-specific conditions or the nature of the covered activity (e.g., steep topography, dense vegetation, limited activities) indicate that a smaller buffer could be used, the Implementing Entity will coordinate with CDFW/USFWS to determine the appropriate buffer size.

If young fledge prior to September 15, covered activities can proceed normally. If the active nest site is shielded from view and noise from the project site by other development, topography, or other features, the project applicant can apply to the Implementing Entity for a waiver of this avoidance measure. Any waiver must also be approved by USFWS and CDFW. While the nest is occupied, activities outside the buffer can take place.

All active nest trees will be preserved on site, if feasible. Nest trees, including non-native trees, lost to covered activities will be mitigated by the project proponent according to the requirements below.

Mitigation for Loss of Nest Trees

The loss of non-riparian Swainson's hawk nest trees will be mitigated by the project proponent by:

- If feasible on-site, planting 15 saplings for every tree lost with the objective of having at least 5 mature trees established for every tree lost according to the requirements listed below.

  AND either

  1) Pay the Implementing Entity an additional fee to purchase, plant, maintain, and monitor 15 saplings on the HCP/NCCP Preserve System for every tree lost according to the requirements listed below, OR
  2) The project proponent will plant, maintain, and monitor 15 saplings for every tree lost at a site to be approved by the Implementing Entity (e.g., within an HCP/NCCP Preserve or existing open space linked to HCP/NCCP preserves), according to the requirements listed below.

The following requirements will be met for all planting options:

- Tree survival shall be monitored at least annually for 5 years, then every other year until year 12. All trees lost during the first 5 years will be replaced. Success will be reached at the end of 12 years if at least 5 trees per tree lost survive without supplemental irrigation or protection from herbivory. Trees must also survive for at least three years without irrigation.
- Irrigation and fencing to protect from deer and other herbivores may be needed for the first several years to ensure maximum tree survival.
- Native trees suitable for this site should be planted. When site conditions permit, a variety of native trees will be planted for each tree lost to provide trees with different growth rates, maturation, and life span, and to provide a variety of tree canopy structures for Swainson's hawk. This variety will help to ensure that nest trees will be available in the short term (5-10 years for cottonwoods and willows) and in the long term (e.g., Valley oak, sycamore). This will also minimize the temporal loss of nest trees.
- Riparian woodland restoration conducted as a result of covered activities (i.e., loss of riparian woodland) can be used to offset the nest tree planting requirement above, if the nest trees are riparian species.
- Whenever feasible and when site conditions permit, trees should be planted in clumps together or with existing trees to provide larger areas of suitable nesting habitat and to create a natural buffer between nest trees and adjacent development (if plantings occur on the development site).
- Whenever feasible, plantings on the site should occur closest to suitable foraging habitat outside the UDA.
- Trees planted in the HCP/NCCP preserves or other approved offsite location will occur within the known range of Swainson's hawk in the inventory area and as close as possible to high-quality foraging habitat.

GOLDEN EAGLE

Preconstruction Survey

Prior to implementation of covered activities, a qualified biologist will conduct a preconstruction survey to establish whether nests of golden eagles are occupied (see Section 6.3.1, *Planning Surveys*). If nests are occupied, minimization requirements and construction monitoring will be required.

Avoidance and Minimization

Covered activities will be prohibited within 0.5 mile of active nests. Nests can be built and active at almost any time of the year, although mating and egg incubation occurs late January through August, with peak activity in March through July. If site-specific conditions or the nature of the covered activity (e.g., steep topography, dense vegetation, limited activities) indicate that a smaller buffer could be appropriate or that a larger buffer should be implemented, the Implementing Entity will coordinate with CDFW/USFWS to determine the appropriate buffer size.

Construction Monitoring

Construction monitoring will focus on ensuring that no covered activities occur within the buffer zone established around an active nest. Although no known golden eagle nest sites occur within or near the ULL, covered activities inside and outside of the Preserve System have the potential to disturb golden eagle nest sites. Construction monitoring will ensure that direct effects to golden eagles are minimized.

3) Construction Monitoring Plan

Before implementing a covered activity, the applicant will develop and submit a construction monitoring plan to the planning department of the local land use jurisdiction and the East Contra Costa County Habitat Conservancy for review and approval. Elements of a brief construction monitoring plan will include the following:

- Results of planning and preconstruction surveys.[11]
- Description of avoidance and minimization measures to be implemented, including a description of project-specific refinements to the measures or additional measures not included in the HCP/NCCP.
- Description of monitoring activities, including monitoring frequency and duration, and specific activities to be monitored.
- Description of the onsite authority of the construction monitor to modify implementation of the activity.

☒ Check box to acknowledge this requirement.

[11] If the preconstruction surveys do not trigger construction monitoring, results of preconstruction surveys should still be submitted to the local jurisdiction and the East Contra Costa County Habitat Conservancy.

V. SPECIFIC CONDITIONS ON COVERED ACTIVITIES

1) Check off the HCP conservation measures that apply to the project.

APPLIES TO ALL PROJECTS

☒ **Conservation Measure 1.11. Avoid Direct Impacts on Extremely Rare Plants, Fully Protected Wildlife Species, or Migratory Birds.** This conservation measure applies to all projects. All projects will avoid all impacts on extremely rare plants and fully protected species listed in Table 6-5 of the ECCC HCP/NCCP. See HCP pp. 6-23 to 6-25, and Table 6-5.

APPLIES TO PROJECTS THAT IMPACT COVERED PLANT SPECIES

☐ **Conservation Measure 3.10. Plant Salvage when Impacts are Unavoidable.** This condition applies to projects that cannot avoid impacts on covered plants and help protect covered plants by prescribing salvage whenever avoidance of impacts is not feasible. Project proponents wishing to remove populations of covered plants must notify the Conservancy of their construction schedule to allow the Conservancy the option of salvaging the populations. See HCP pp. 6-48 to 6-50.

APPLIES TO PROJECTS THAT INCLUDE ARE ADJACENT TO STREAMS, PONDS, OR WETLANDS

☒ **Conservation Measure 2.12. Wetland, Pond, and Stream Avoidance and Minimization.** All projects will implement measures described in the HCP to avoid and minimize impacts on wetlands, ponds, streams, and riparian woodland/scrub. See HCP pp. 6-33 to 6-35.

APPLIES TO NEW DEVELOPMENT PROJECTS

☒ **Conservation Measure 1.10. Maintain Hydrologic Conditions and Minimize Erosion.** All new development must avoid or minimize direct and indirect impacts on local hydrological conditions and erosion by incorporating the applicable Provision C.3 Amendments of the Contra Costa County Clean Water Program's (CCCCWP's) amended NPDES Permit (order no. R2-2003-0022; permit no. CAS002912). The overall goal of this measure is to ensure that new development covered under the HCP has no or minimal adverse effects on downstream fisheries to avoid take of fish listed under ESA or CESA. See HCP pp. 6-21 to 6-22.

APPLIES TO NEW DEVELOPMENT PROJECTS THAT INCLUDE OR ARE ADJACENT TO STREAMS, PONDS, OR WETLANDS

☐ **Conservation Measure 1.7. Establish Stream Setbacks.** A stream setback will be applied to all development projects covered by the HCP according to the stream types listed in Table 6-2 of the HCP. See HCP pp. 6-15 to 6-18 and Table 6-2.

APPLIES TO NEW DEVELOPMENT PROJECTS ADJACENT TO EXISTING PUBLIC OPEN SPACE, HCP PRESERVES, OR LIKELY HCP ACQUISITION SITES

☐ **Conservation Measure 1.6. Minimize Development Footprint Adjacent to Open Space.** Project applicants are encouraged to minimize their development footprint and set aside portions of their land to contribute to the HCP Preserve System. Land set aside that contributes to the HCP biological goals and objectives may be credited against development fees. See HCP pages 6-14 to 6-15.

☐ **Conservation Measure 1.8. Establish Fuel Management Buffer to Protect Preserves and Property.** Buffer zones will provide a buffer between development and wildlands that allows adequate fuel management to minimize the risk of wildlife damage to property or to the preserve. The minimum buffer zone for new development is 100 feet. See HCP pages 6-18 to 6-19.

☐ **Conservation Measure 1.9. Incorporate Urban-Wildlife Interface Design Elements.** These projects will incorporate design elements at the urban-wildlife interface to minimize the indirect impacts of development on the adjacent preserve. See HCP pp. 6-20 to 6-21.

APPLIES TO ROAD MAINTENANCE PROJECTS OUTSIDE THE UDA

☐ **Conservation Measure 1.12. Implement Best Management Practices for Rural Road Maintenance.** Road maintenance activities have the potential to affect covered species by introducing sediment and other pollutants into downstream waterways, spreading invasive weeds, and disturbing breeding wildlife. In order to avoid and minimize these impacts, BMPs described in the HCP will be used where appropriate and feasible. See HCP pp. 6-25 to 6-26.

APPLIES TO NEW ROADS OR ROAD IMPROVEMENTS OUTSIDE THE UDA

☐ **Conservation Measure 1.14. Design Requirements for Covered Roads Outside the Urban Development Area (UDA).** New roads or road improvements outside the UDA have impacts on many covered species far beyond the direct impacts of their project footprints. To minimize the impacts of new, expanded, and improved roads in agricultural and natural areas of the inventory area, road and bridge construction projects will adopt siting, design, and construction requirements described in the HCP and listed in Table 6-6. See HCP pp. 6-27 to 6-33 and Table 6-6.

APPLIES TO FLOOD CONTROL MAINTENANCE ACTIVITIES

☐ **Conservation Measure 1.13. Implement Best Management Practices for Flood Control Facility Maintenance.** Flood control maintenance activities have the potential to affect covered species by introducing sediment and other pollutants into downstream waterways and disturbing breeding wildlife. In order to avoid and minimize these impacts, BMPs described in the HCP will be used where appropriate and feasible. See HCP pp. 6-26 to 6-27.

2) **For all checked conservation measures, describe how the project will comply with each measure. Attach as Attachment C: Project Compliance to HCP Conditions.**

VI. MITIGATION MEASURES

1) **Mitigation Fee Calculator(s)**
   Complete and attach the fee calculator (use permanent and/or temporary impact fee calculator as appropriate), and attach as **Attachment D: Fee Calculator(s)**.

2) **Briefly describe the amount of fees to be paid <u>and</u> when applicant plans to submit payment.**

   Upon confirmation by the City of Pittsburg, the applicant will pay the appropriate fees for 1.86 acres of permanent impacts and 0.73 acres of temporary impacts. Impacts to 0.49 acres of Urban habitat are not counted toward the total fee calculation. The total fees amount to $18,715.92.

ATTACHMENT A: PROJECT DESCRIPTION

1620 West Fountainhead Parkway, Suite 119
Tempe, AZ 85282

Project Oakstone Northern California Expansion Project
Project Narrative

The following presentation contains details considered Confidential Information under the Non-Disclosure Agreement between Praxair/Linde and the City of Pittsburg. We appreciate your discretion with this information.

Linde Inc., the successor company to the 2019 merger of Praxair, Inc. and Linde plc, is proposing to expand in the Northern California industrial gas market by building a new plant at our existing facility in Pittsburg, California. The new facility will simply expand our current production of liquid nitrogen, oxygen, and argon. No additional or new products will be produced. The liquid products will be distributed via truck to the San Francisco Bay Area market, the Central Valley, and into nearby states.

The following Project Narrative describes the industry, process, and overview of the proposed gas plant site layout and operations.

Industrial Gas Market Overview

The industrial gas industry produces three general categories of products:

1. Atmospheric Gases (derived from air): oxygen, nitrogen, rare gases (argon, xenon, krypton, neon)
2. Process Gases (derived from industrial processes or natural gas): hydrogen, carbon dioxide, helium, acetylene
3. Instrument, Specialty and Electronics gases: arsine, phosphine, silane, and various cylinder gas mixtures

These products are produced and distributed in one of three means:

a) On-Site: an industrial gas plant is constructed at/near the customer's site and products are distributed in gaseous form via pipeline
b) Merchant: an industrial gas plant is constructed in a central location and products are distributed in bulk liquid form via trucks
c) Packaged: a Merchant plant supplies liquid bulk products to a facility that repackages the gases into smaller quantities, cylinders, and mixes

Linde's existing facility produces all three options: a) and b) at the Linde Joint Venture plant with Airgas, and c) in the adjoining Linde Gas & Equipment Inc. (formerly Praxair Distribution Inc.) cylinder plant. In this application Linde proposes to expand Option 1(b): a second centralized atmospheric air separation plant, producing just three products: liquid nitrogen, liquid oxygen, and liquid argon. The products are stored in three large storage tanks, when needed transferred into bulk trucks, and then delivered into smaller tanks at our customer locations. Our customers are a diverse set of industries, including hospitals, food processors, electronics, primary metals, energy, chemicals, and aerospace.

The market is very consolidated, comprised of five major companies that together have a 95-98% market share in the United States. There are three air separation plants in the Bay Area, the other two are in Vacaville and Santa Clara. The products are hyper-critical to our economy: in one example, these 3 plants supplied medical oxygen to every Covid ventilator at every Bay Area hospital during our recent pandemic.

Overview of the Air Separation On-Site + Merchant Plant Process

The air separation process is one of the cleanest processes known to man. Using a huge amount of electricity, we use physical chemistry to separate the three main components of air – nitrogen (78% of the air), oxygen (21%), and argon (1%) by cooling them down to cryogenic temperatures where they change from gas to liquid phase. There is no combustion, chemical reactions, additional ingredients, or added materials needed to separate the gases into their pure elemental form. People inhale our products in every breath.

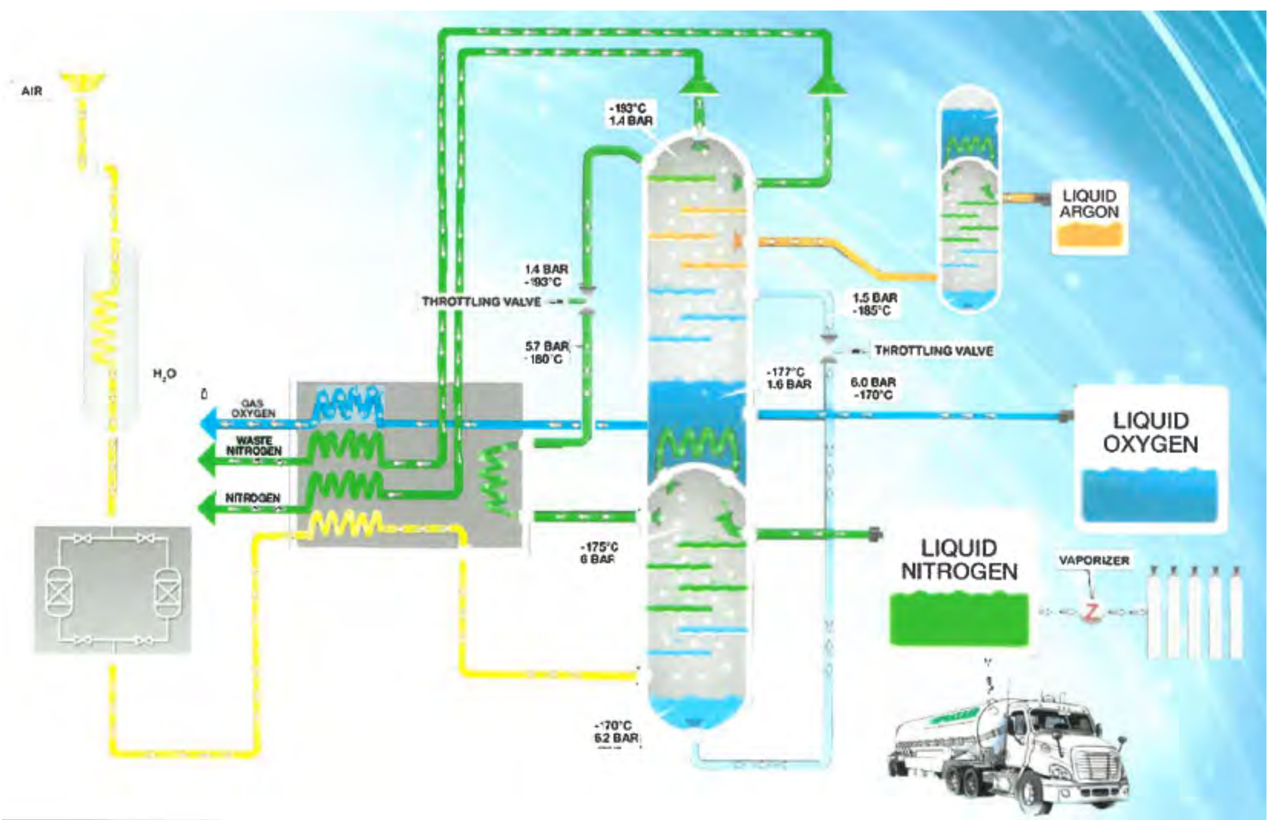
Each air separation plant consists of the following equipment, all outdoors:

- Two main air compressors
- Two prepurifier vessels which remove moisture, carbon dioxide, and the other gases in air and return them back to the air
- An industrial class chiller to pre-cool the air
- One large distillation tower containing heat exchangers, booster compressor/turbine sets, and cryogenic distillation columns
- Three individual sets of storage tanks for the three products
- Interconnecting piping and instrumentation and valving
- An electric substation to consume large amounts of electricity needed to operate the facility
- A cooling tower, associated piping and heat exchangers to remove the heat from the compressors

We anticipate building a second air separation plant. The distillation tower is a single, square package approximately 14.5 feet per side and reaches a maximum height of 137 feet. The tower height is required for the separation of the three gases. The towers arrive at the plant site during the construction phase in a single section and are installed by large cranes. The distillation tower has no moving parts and is designed to in such a way that requires a vertical distance to enable the liquid and gases to move and physically separate within the columns inside the structure. All products are recovered from the column and there is no venting of product within these columns during steady state operations.

The following is a short description of the air separation and liquefaction process. Please refer to the attachment on the following page:

> Air is pulled into the main air compressor and compressed to 80-90 psig. All the impurities and contaminants of air other than nitrogen, oxygen, and argon are filtered out and returned to the air. The remaining Clean Dry Air (CDA) is cooled to -285 °F and sent into the air separation tower. In the tower, nitrogen, oxygen, and argon are physically separated by operating the three internal columns at different pressures and temperatures.
>
> Gaseous nitrogen is pulled out of the column and sent to a large air conditioning unit (liquefier) using nitrogen as both cooled product and refrigerant to liquefy it. Liquid nitrogen is then used in turn to liquefy the separated oxygen and argon. The three products leave the tower and are stored in individual cryogenic storage tanks. Upon customer request we then transfer the product into bulk trucks and deliver to customers.



The air separation process is the most electricity intensive process known to man. Our industry did not exist until large amounts of AC electricity was invented by Tesla and Westinghouse. We consume 25 times the amount of electricity of a normal industrial customer and are often one of the Top 20 customers of the associated electric utility.

Process and Design Safety

Safety is a huge aspect of our business and operations. Though the products we make are not poisonous, nontoxic, and nonflammable (we are breathing them), the cryogenic temperatures and extreme purity of the gases create their own hazards. We have met with the Contra Costa Fire Protection District for training and tours of our existing facility. As we do at many of our other production plants nationwide, Linde looks forward maintaining a close relationship with our local fire department and regularly inviting them on site for training.

Proposed Northern California facility

Linde is planning to install a comprehensive design solution for our Pittsburg expansion. The solution will encompass 2.1 acres of our existing 31-acre land on Loveridge Road.

A picture of the existing facility on Loveridge Road is shown below. The gold box indicates the location of proposed expansion.

An important topic to note is that the expansion will have no new buildings. There will be new pre-fabricated electrical equipment and analytical enclosures included in the expansion.

Outside of electricity (where Linde will expand the current substation with PG&E oversight), other utilities are minimal. We do not anticipate any need for natural gas. We will need 100-120 gpm of water to the cooling tower that needs water to remove the heat from the process and will return some 25-35 gpm of that to the POTW (the rest is vaporized into the air). We also recycle and reuse the compressed air condensate byproduct to minimize water use. We will store 5-10 barrels of compressor oil on site to ensure the equipment is properly lubricated and scupper any rainwater that may fall on compression equipment.

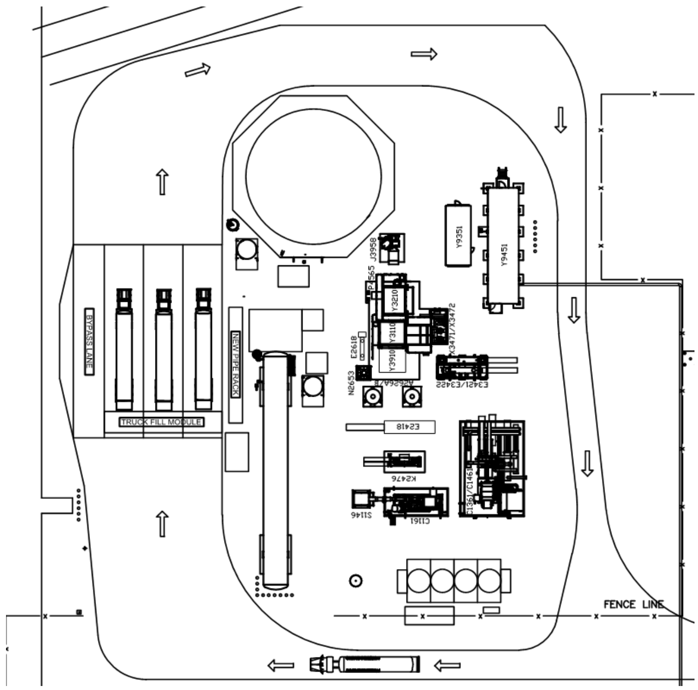
The cooling water system treatment will have one approximately 250 gallon double walled tanks for sulfuric acid (used to control pH), sodium hypochlorite (bleach, used to control algae growth), and smaller tanks for 1-2 other specialized cooling water chemicals used to control hardness based on the specific incoming water chemistry.

No flammable gases outside of 6-8 cylinders for analyzer calibration is contemplated as part of the expansion. The existing plant has a small liquid hydrogen tank to support argon production, the new plant uses a newer technology and does not require hydrogen supply. Our delivery trucks will use the existing fuel island so no additional diesel fuel storage is needed.

The project is very capital and electricity intensive, but not labor intensive: Linde will employ 3-4 employees to operate the highly automated plant and another 14 truck drivers at full capacity to deliver product to our customers. Hiring of the drivers will depend upon how quickly Linde can capture new market demand.

Proposed Layout

The current proposed facility layout is shown below. The entire plant is outdoors. We will use the existing buildings on site for the additional employees – no new building is contemplated as part of this project. There will be two electrical switchgear enclosures and a Quality Assurance analyzer enclosure in the fill zone. Trucks (starting at 6-7, ramping to 16-20 per day) will enter and exit the new facility using the existing entrance off Loveridge Road. Nearly all truck traffic is expected to immediately onto Highway 4 to access the Bay Area and Northern California.



Planning Confirmation Needed to Accommodate Project

Because Linde has operated an industrial gas facility at the site since 1959, we believe most approvals to expand our existing product line have already been obtained. There are however a few changes the new facility will have vs. the existing site. We appreciate some direction to enable this project to proceed:

1. We would like to confirm that the proposed site in the back of the plant is also zoned for industrial use.
2. The height of the new distillation tower is 137 feet, the existing tower is 115 feet. We would like to understand if this is an issue and how we could obtain approval for the higher tower if needed.
3. The new plant will have compressors and turbines like the existing site that will generate noise, approximately the same pitch and decibel level as the existing plant. We would like to understand if this is an issue.

Summary

We look forward to working with the various departments within the City to make this proposed expansion project a reality and enable additional economic growth in the San Francisco Bay Area. Thank you for your consideration.

ATTACHMENT B: FIGURES

Legend

- Highway
- Study Area
- County Boundary

FIGURE 1
Regional Vicinity Map

Oakstone Expansion Project
City of Pittsburg, Contra Costa County, CA

N
W E
S

1:95,040
(1 in. = 1.5 miles, at letter-size layout)

0 0.5 1 2 Km

0 0.5 1 2 Mi

Data Sources: TIGER, 2010 | City of Pittsburg, 2018
USGS, various | GAP, 1998
GIS/Cartography by K. Chinn, June 2023
Map File: 594_Vicinity_A-P_2023-0629.mxd

CONSTRUCTION NOTES

1. GENERAL CONSIDERATIONS

A. ALL WORK SHALL BE PERFORMED IN COMPLIANCE WITH THE PRINCIPLES OF GOOD CONSTRUCTION PRACTICE.

B. ALL WORK SHALL BE PERFORMED IN COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS OF THE LOCAL, STATE, AND NATIONAL CODES, AS WELL AS WITH THE PRINCIPLES OF GOOD CONSTRUCTION PRACTICE.

C. DURING THE CONSTRUCTION PERIOD THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY (INCLUDING FIRE SAFETY) OF THE NEW, AS WELL AS EXISTING, STRUCTURES. THE CONTRACTOR SHALL PROVIDE ADEQUATE SHORING, BRACING, AND GUYS IN ACCORDANCE WITH ALL NATIONAL, STATE, AND LOCAL SAFETY ORDINANCES. THAT RESPONSIBILITY SHALL APPLY CONTINUOUSLY AND SHALL NOT BE LIMITED TO NORMAL WORKING HOURS. ANY DEVIATION FROM SUCH ORDINANCES MUST BE REVIEWED AND APPROVED BY SGE PRIOR TO CONSTRUCTION.

D. THE CONTRACTOR SHALL THOROUGHLY REVIEW THE PLANS AND CHECK ALL DIMENSIONS PRIOR TO COMMENCING THE WORK. ALL DISCREPANCIES SHALL BE CALLED TO THE ATTENTION OF SGE AND RESOLVED BEFORE PROCEEDING WITH THE WORK.

E. THE CONTRACTOR SHOULD NOT PROCEED WITH CONSTRUCTION IN CASE OF CONFLICT(S) BETWEEN THE DETAILS, AND/OR BETWEEN THE DETAILS AND PLANS, AND/OR BETWEEN THE PLANS AND SCHEDULES. THE CONSTRUCTION SHALL RESUME ONLY UPON THE FULL RESOLUTION OF SUCH CONFLICT BY SGE.

F. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE RESTORATION OF WORKING CONDITION OF ALL EXISTING COMPONENTS AND STRUCTURES AFFECTED BY THIS CONSTRUCTION. THE CONTRACTOR SHALL CONSTANTLY KEEP THE AREA OF CONSTRUCTION FROM ACCUMULATION OF WASTE MATERIALS AND DEBRIS.

G. AT THE END OF EACH DAY OF CONSTRUCTION ACTIVITY, ALL CONSTRUCTION DEBRIS AND WASTE MATERIALS SHALL BE COLLECTED AND PROPERLY DISPOSED IN TRASH OR RECYCLE BINS. AT THE END OF WORK, THE CONTRACTOR SHALL REMOVE ALL WASTE, SURPLUS MATERIAL, TOOLS, AND EQUIPMENT.

H. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONJUNCTION WITH THIS PROJECT EXCEPT FOR LIABILITY RISING FROM THE SOLE NEGLIGENCE OF THE ENGINEER.

I. DO NOT SCALE THESE DRAWINGS. WRITTEN DIMENSIONS TAKE PRECEDENCE OVER ASSUMED OR SCALED DIMENSIONS.

J. ALL DIMENSIONS ARE TO FACE OF FINISHED SURFACES. LAYOUT OF STRUCTURES AND FOUNDATIONS MUST BE DETERMINED BY EXAMINATION OF PLANS AND FINISH MATERIALS SELECTED AND SHALL NOT BE ASSUMED AS BEING EXPRESSED BY THE WRITTEN FINISHED SURFACE DIMENSIONS.

K. SITE DRAWINGS ARE BASED UPON THE PLANS OBTAINED FROM THE AUTHORITY HOLDING JURISDICTION (AHJ), AND/OR PROVIDED BY THE PROPERTY OWNER, AND/OR AVAILABLE AERIAL IMAGES. UNLESS NOTED OTHERWISE, NO TOPOGRAPHIC, BOUNDARY, OR LAND TITLE SURVEY WAS PERFORMED FOR THE PROJECT.

L. ALL CUTSHEETS, DETAILS, AND DIMENSIONS MARKED "FOR REFERENCE ONLY" REFLECT *INFORMATION BY OTHERS,* ARE PRESENTED EXCLUSIVELY FOR REFERENCE PURPOSES, AND USED BY SGE AS A BASIS FOR STRUCTURAL DESIGN. UNLESS NOTED OTHERWISE, THE VERACITY OF THE *INFORMATION,* AS WELL AS THE ADEQUACY OF *EQUIPMENT BY OTHERS*, WAS NOT VERIFIED AND WAS ASSUMED BY SGE AS COMPLIANT WITH ALL APPLICABLE CODES AND STANDARDS. THE SGE STAMP AND SIGNATURE PERTAIN EXCLUSIVELY TO THE PORTIONS OF THE STRUCTURAL DRAWINGS AND CALCULATIONS DEVELOPED BY SGE.

2. STORMWATER, EROSION, AND ENVIRONMENTAL CONSIDERATIONS

ALL CONSTRUCTION WORK SHALL FULLY COMPLY WITH ALL STORMWATER, EROSION, GRADING, AND ENVIRONMENTAL REQUIREMENTS OF THE LOCAL, STATE AND FEDERAL CODES - INCLUDING (BUT NOT LIMITED TO) THE FOLLOWING:

A. ALL CONSTRUCTION CONTRACTOR AND SUBCONTRACTOR PERSONNEL ARE TO BE MADE AWARE OF, AND COMPLY WITH, THE AUTHORITY HOLDING JURISDICTION (AHJ) BEST MANAGEMENT PRACTICES (BMP) AND GOOD HOUSEKEEPING MEASURES FOR THE PROJECT SITE AND ANY ASSOCIATED CONSTRUCTION STAGING AREAS.

B. APPROPRIATE BMP FOR CONSTRUCTION-RELATED MATERIALS, WASTES, AND SPILLS SHALL BE IMPLEMENTED TO MINIMIZE TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES, OR ADJOINING PROPERTY BY WIND OR RUNOFF.

C. CONSTRUCTION SITES SHALL BE MAINTAINED IN SUCH A CONDITION THAT AN ANTICIPATED STORM DOES NOT CARRY WASTES OR POLLUTANTS OFF THE SITE. DISCHARGES OF MATERIAL OTHER THAN STORMWATER ARE ALLOWED ONLY WHEN NECESSARY FOR PERFORMANCE AND COMPLETION OF CONSTRUCTION PRACTICES AND WHERE THEY DO NOT: (A) CAUSE OR CONTRIBUTE TO A VIOLATION OF ANY WATER QUALITY STANDARD; (B) CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR NUISANCE; AND/OR (C) CONTAIN A HAZARDOUS SUBSTANCE IN A QUANTITY REPORTABLE UNDER FEDERAL REGULATIONS CFR PARTS 117 AND 302.

D. RUNOFF FROM EQUIPMENT AND VEHICLE WASHING SHALL BE CONTAINED AT CONSTRUCTION SITES UNLESS TREATED TO REDUCE OR REMOVE SEDIMENT OR OTHER POLLUTANTS.

E. POTENTIAL POLLUTANTS INCLUDE, BUT ARE NOT LIMITED TO: SOLID OR LIQUID CHEMICAL SPILLS; WASTES FROM PAINTS, STAINS, SEALANTS, GLUES, LIMES, PESTICIDES, HERBICIDES, WOOD PRESERVATIVES AND SOLVENTS; ASBESTOS FIBERS, PAINT FLAKES OR STUCCO FRAGMENTS; FUELS, OILS, LUBRICANTS, AND HYDRAULIC, RADIATOR OR BATTERY FLUIDS; FERTILIZERS, VEHICLE/EQUIPMENT WASH WATER AND CONCRETE WASH WATER; CONCRETE; DETERGENT OR FLOATABLE WASTES; WASTES FROM ANY ENGINE/ EQUIPMENT STEAM CLEANING OR CHEMICAL DEGREASING AND SUPERCHLORINATED POTABLE WATER LINE FLUSHING.

F. DURING CONSTRUCTION, THE DISPOSAL OF SUCH MATERIALS SHALL OCCUR IN A SPECIFIED AND CONTROLLED TEMPORARY AREA ON-SITE PHYSICALLY SEPARATED FROM STORMWATER RUNOFF, WITH ULTIMATE DISPOSAL IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REQUIREMENTS.

G. DEWATERING OF CONTAMINATED GROUND WATER OR DISCHARGING OF CONTAMINATED SOILS VIA SURFACE EROSION IS PROHIBITED. DEWATERING OF NON-CONTAMINATED GROUND WATER REQUIRES A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FROM THE RESPECTIVE STATE REGIONAL WATER QUALITY BOARD.

H. SEDIMENT FROM AREAS DISTURBED BY CONSTRUCTION SHALL BE RETAINED ON SITE USING STRUCTURAL CONTROLS TO THE MAXIMUM PRACTICAL EXTENT.

I. STOCKPILES OF SOIL SHALL BE PROPERLY CONTAINED TO MINIMIZE SEDIMENT TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES OR ADJACENT PROPERTIES VIA RUNOFF, VEHICLE TRACKING, OR WIND.

J. GRADED AREAS ON THE PERMITTED AREA PERIMETER MUST DRAIN AWAY FROM THE FACE OF THE SLOPES AND TOWARD DESILTING FACILITIES AT THE CONCLUSION OF EACH WORKING DAY.

K. THE PERMITTEE AND THE CONTRACTOR SHALL BE RESPONSIBLE AND SHALL TAKE THE NECESSARY PRECAUTIONS TO PREVENT PUBLIC TRESPASS ONTO AREAS WHERE IMPOUNDED WATER CREATES A HAZARDOUS CONDITION.

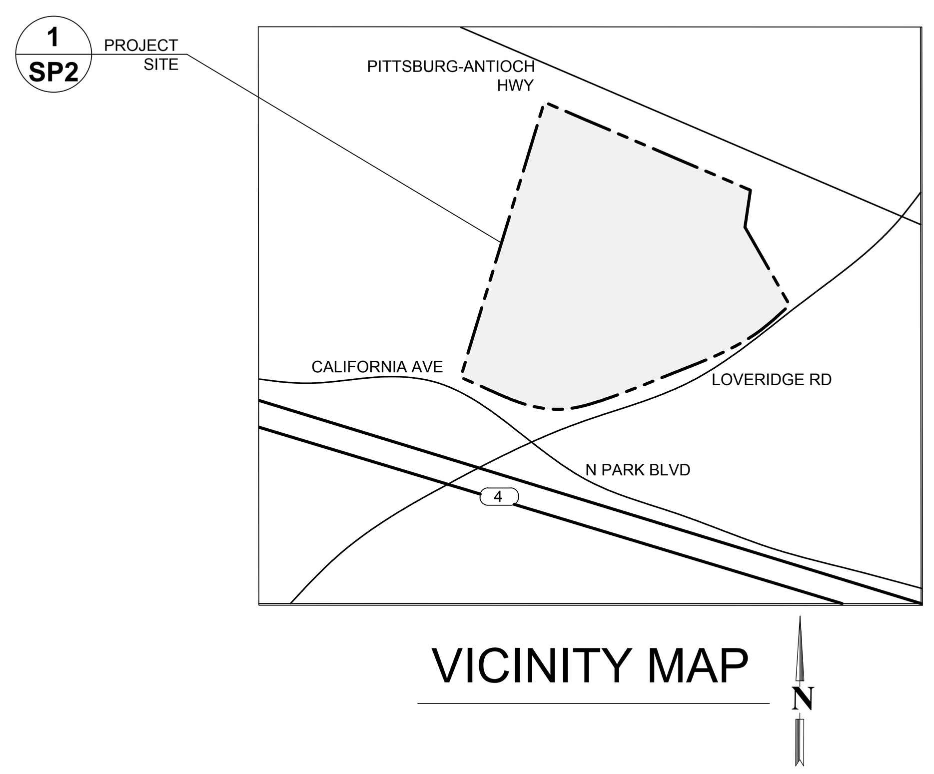
L. THE PERMITTEE AND THE CONTRACTOR SHALL ENSURE THAT THE EROSION CONTROL WORK IS IN ACCORDANCE WITH THE APPROVED PLANS.

PROJECT INFORMATION

	NO CHANGE	
PROJECT DESCRIPTION		INSTALLATION OF AN AIR SEPARATION UNIT SYSTEM, INCLUDING A DISTALLATION TOWER, HEAT EXCHANGER COLD BOX, STORAGE TANKS, AIR COMPRESSOR AND AUXILIARY EQUIPMENT. NO CHANGE IN FLOOR AREA. NO CHANGE IN PARKING.
PROJECT ADDRESS	☑	2000 LOVERIDGE RD, PITTSBURG, CA 94565
PROJECT COORDINATES	☑	38°00'49.7"N 121°51'55.8"W
ASSESSOR PARCEL NUMBER	☑	073-190-035
CODES		2022 CALIFORNIA BUILDING CODE 2022 CALIFORNIA MECHANICAL CODE 2022 CALIFORNIA ELECTRICAL CODE
LOT SIZE	☑	31.40 ACRES ±
BUILDING AREA	☑	MULTIPLE BUILDINGS, NIC
BUILDING HEIGHT	☑	VARIES

PROJECT TEAM

CLIENT, MECHANICAL, ELECTRICAL	LINDE ENGINEERING NORTH AMERICA, LLC 175 E PARK DR, TONAWANDA, NY 14150
SITE PLAN & PROJECT COORDINATION	SGE CONSULTING STRUCTURAL ENGINEERS 2081 BUSINESS CENTER DR #105 IRVINE, CA 92612 (949) 552-5244



VICINITY MAP

DRAWING INDEX

DRAWING	DRAWING TITLE
SP1	NOTES & PROJECT INFORMATION
SP2	SITE PLAN
SP3	ENLARGED AREA OF WORK
SP4	2D ELEVATIONS
SP5	3D ELEVATION

CLIENT

LINDE ENGINEERING NORTH AMERICA, LLC

175 E. Park Dr,
Tonawanda, NY 14150

INSTALLATION OF AN ASU PLANT

LOCATION
Linde Pittsburg Plant
2000 Loveridge Rd, Pittsburg, CA 94565

S. GORDIN STRUCTURAL DESIGN & ENGINEERING SERVICES (SGE), INC.
2081 Business Ctr Dr., Ste. 105, Irvine, CA 92612
TEL. (949) 552-5244 FAX (949) 552-5243

REGISTERED PROFESSIONAL ENGINEER
VYACHESLAV "STEVE" GORDIN, Ph.D.
No. S-4311
STRUCTURAL
STATE OF CALIFORNIA

May 5, 2023

SGE JOB No. 522.103.836

LINDE PITTSBURG COOLING TOWER-SITE PLAN

REVISIONS

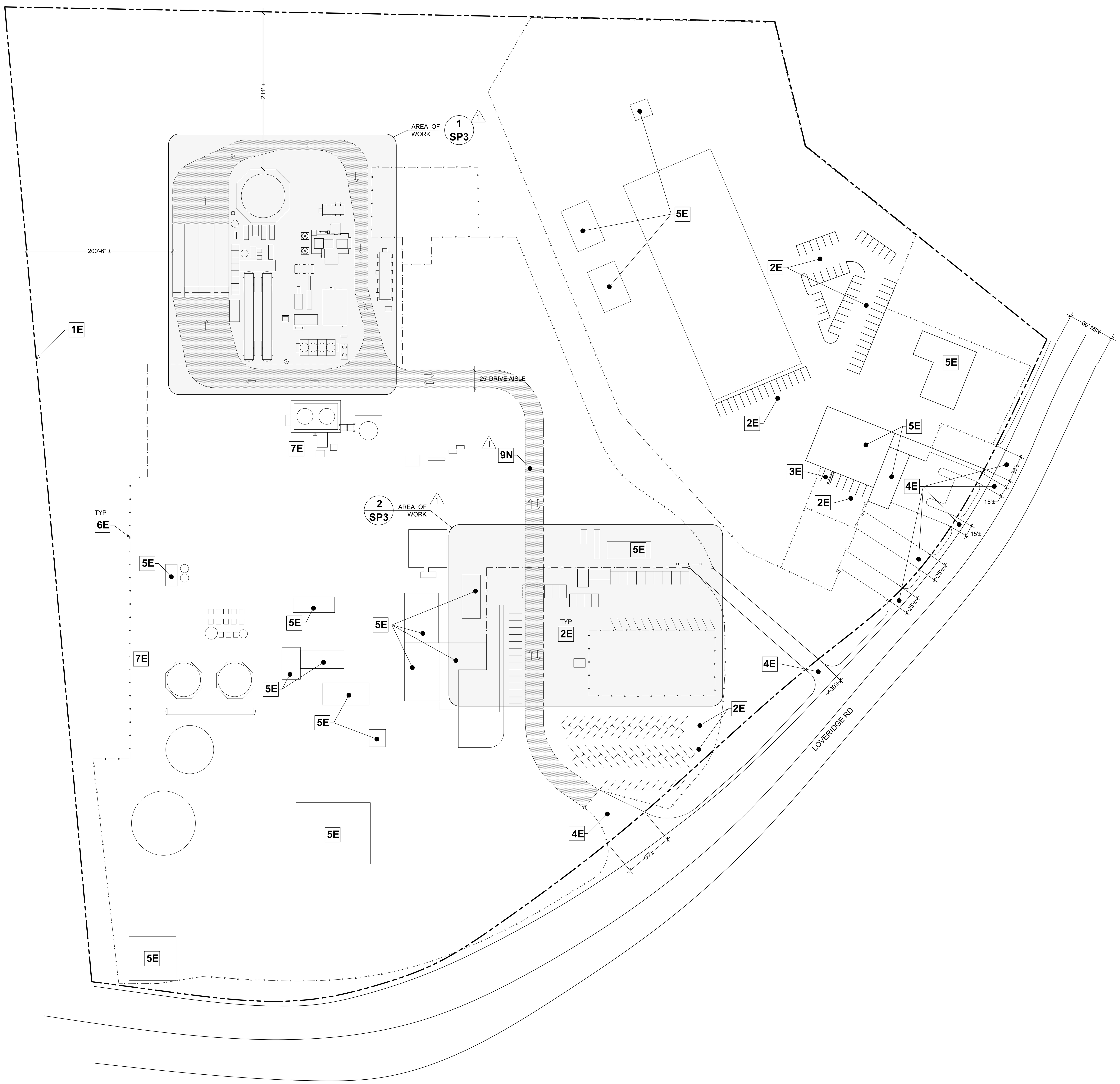
REV	DATE	DESCRIPTION	BY / APP'd
1	05/01/2023	PLAN CHECK COMMENT	JH / VSG

DATE:	March 28, 2023
DESIGNED BY	JH
APPROVED BY	VSG

TOTAL SITE PLAN SHEETS - 5

NOTES & PROJECT INFORMATION

SP1



1 SITE PLAN
FOR REFERENCE ONLY

80 FT 0 80 FT 160 FT

NOTE:
SITE PLAN IS FOR REFERENCE ONLY
SGE STAMP ONLY PERTAINS TO THE AREA OF WORK.

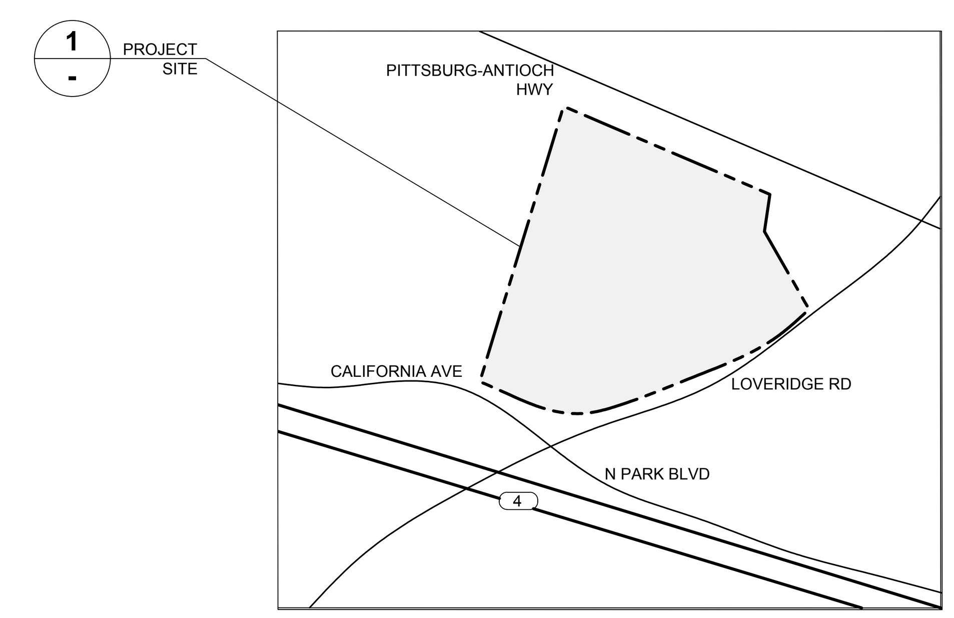
PARKING SUMMARY TABLE

PARKING SUMMARY

EXISTING PARKING PROVIDED :	150 STALLS
TOTAL PARKING STALLS: (AFTER REMOVAL OF 7 STANDARD STALLS)	143 STALLS

KEYNOTES

EXISTING (E) NO CHANGE UNLESS NOTED OTHERWISE BY OTHERS, NIC		NEW (N) REFER TO SP3	
1E	PROPERTY LINE	1N	TANK: LIQUID NITROGEN
2E	PARKING	2N	RECTIFICATION COLD BOX
3E	ACCESSIBLE PARKING	3N	HEAT EXCHANGER COLDBOX
4E	DRIVEWAY	4N	TRUCK FILL MODULES
5E	BUILDING	5N	TANK: LIQUID OXYGEN
6E	FENCE	6N	4-CELL COOLING TOWER
7E	EQUIPMENT YARD	7N	MISC EQUIPMENT
		8N	FILL AREA
		9N	CIRCULATION PATTERN



VICINITY MAP

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Tonawanda, NY 14150

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DATE:	March 28, 2023
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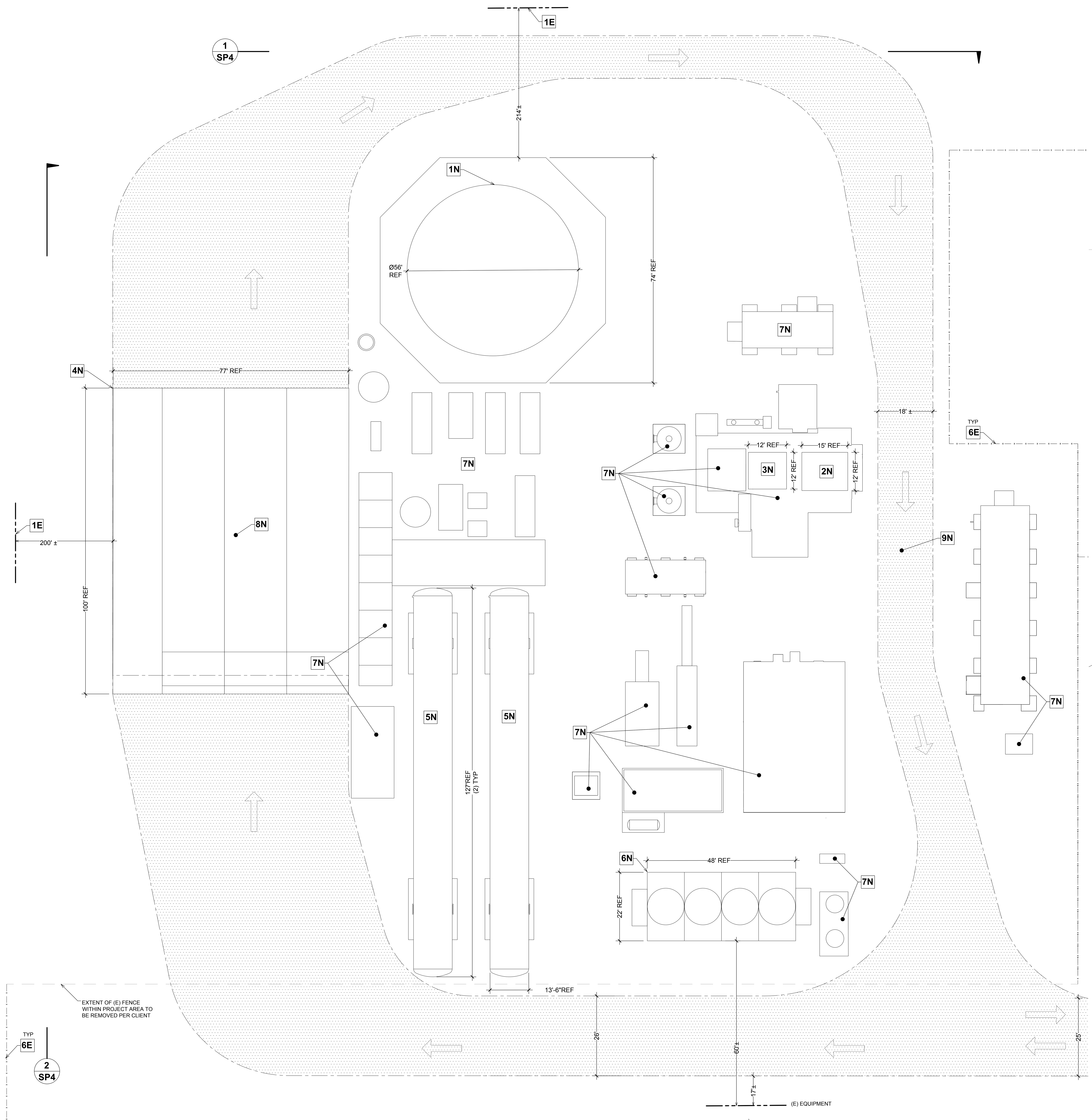
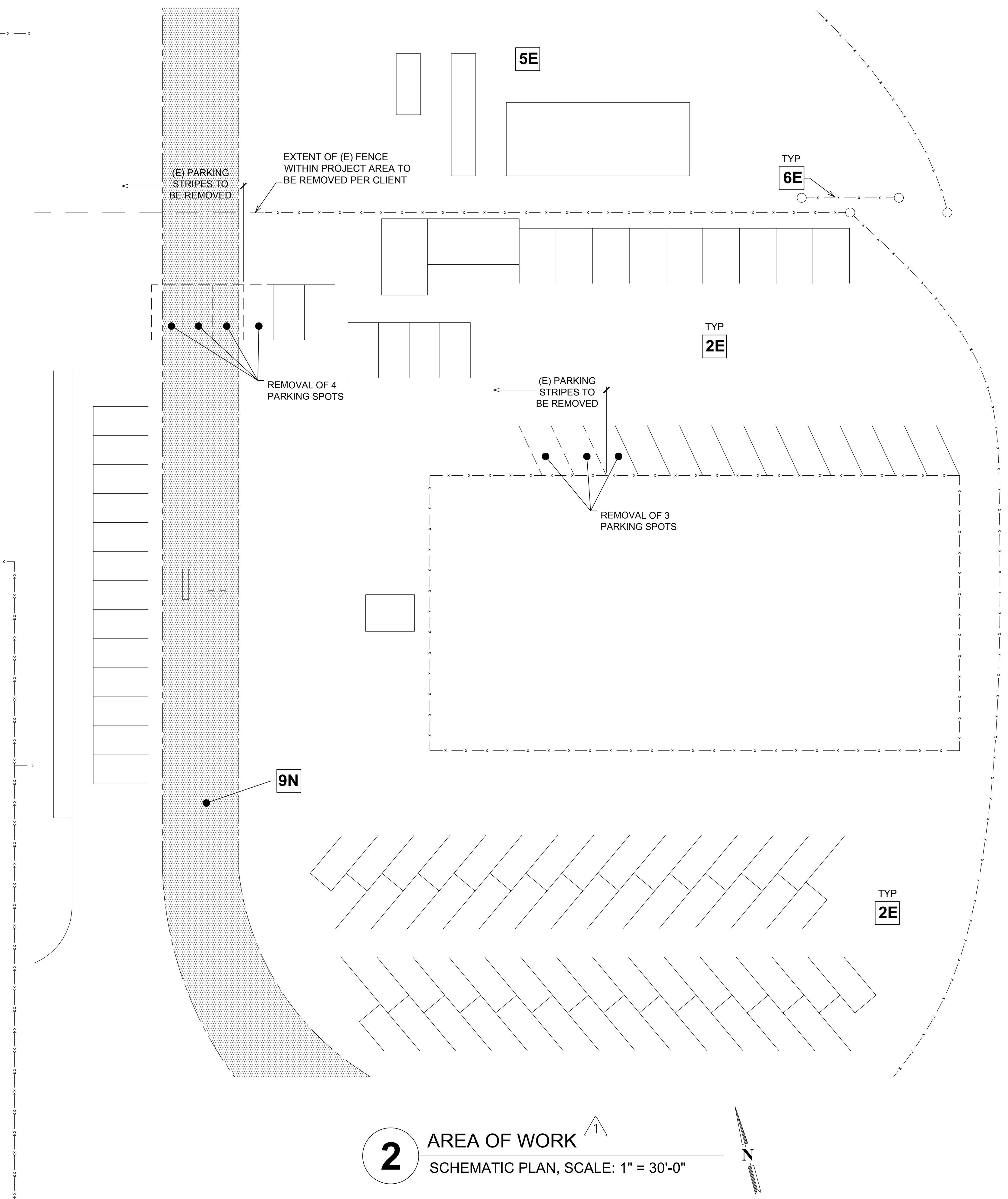
TOTAL SITE PLAN SHEETS - 5

SITE PLAN

SP2



1 AREA OF WORK
SCHEMATIC PLAN, SCALE: 1" = 20'-0"
FOR REFERENCE ONLY



2 AREA OF WORK
SCHEMATIC PLAN, SCALE: 1" = 30'-0"

KEYNOTES

EXISTING (E) NO CHANGE UNLESS NOTED OTHERWISE BY OTHERS, NIC		NEW (N) REFER TO SP3	
1E	PROPERTY LINE	1N	TANK: LIQUID NITROGEN
2E	PARKING	2N	RECTIFICATION COLD BOX
3E	ACCESSIBLE PARKING	3N	HEAT EXCHANGER COLDBOX
4E	DRIVEWAY	4N	TRUCK FILL MODULES
5E	BUILDING	5N	TANK: LIQUID OXYGEN
6E	FENCE	6N	4-CELL COOLING TOWER
7E	EQUIPMENT YARD	7N	MISC EQUIPMENT
		8N	FILL AREA
		9N	CIRCULATION PATTERN

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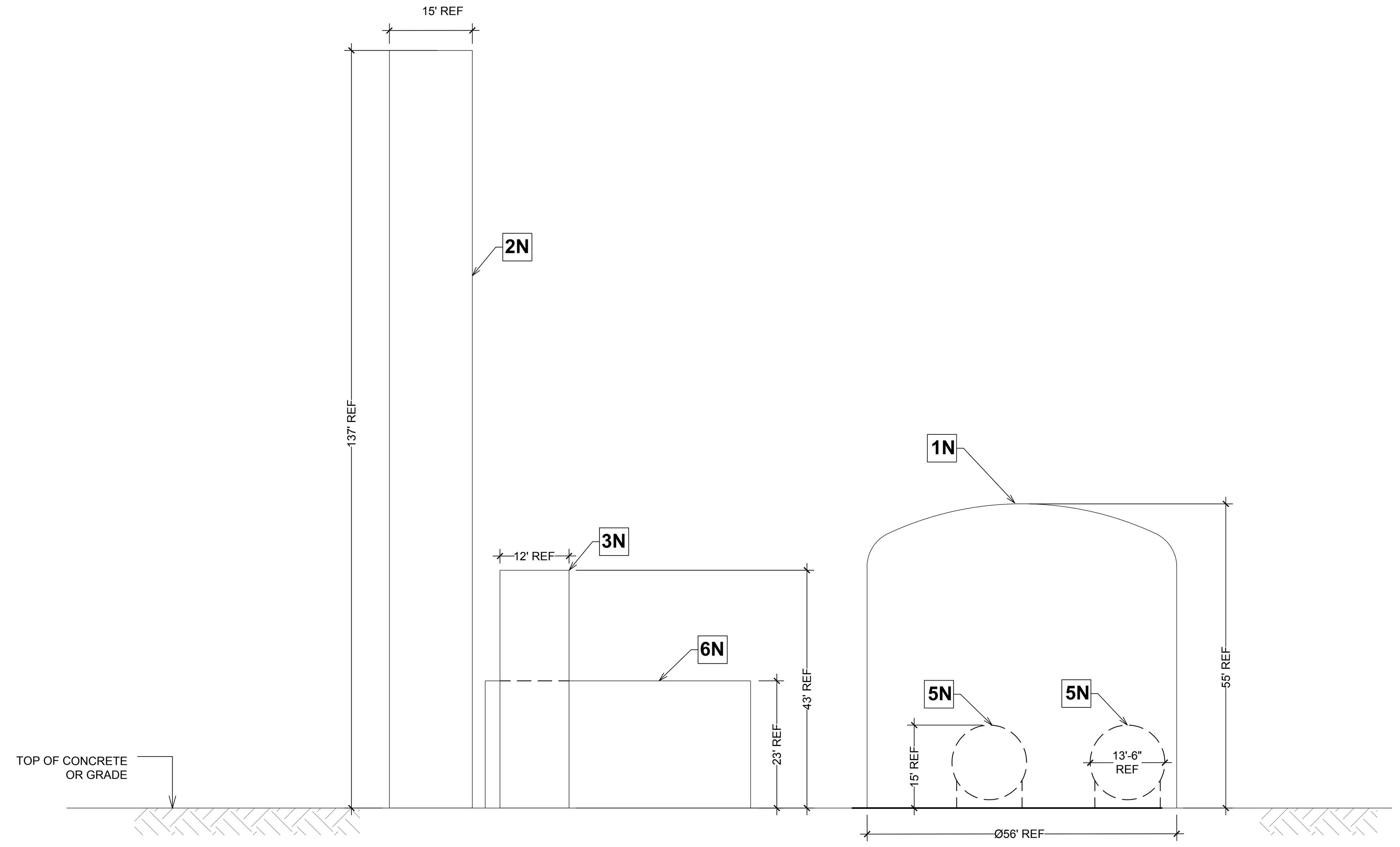
ENLARGED AREA OF WORK

SP3



MISC EQUIPMENT
NOT SHOWN FOR CLARIFY

1 ELEVATION LOOKING SOUTH

ELEVATION, SCALE: 1" = 20'-0"

KEYNOTES

EXISTING (E) NO CHANGE UNLESS NOTED OTHERWISE BY OTHERS, NIC		NEW (N) REFER TO SP3	
1E	PROPERTY LINE	1N	TANK: LIQUID NITROGEN
2E	PARKING	2N	RECTIFICATION COLD BOX
3E	ACCESSIBLE PARKING	3N	HEAT EXCHANGER COLDBOX
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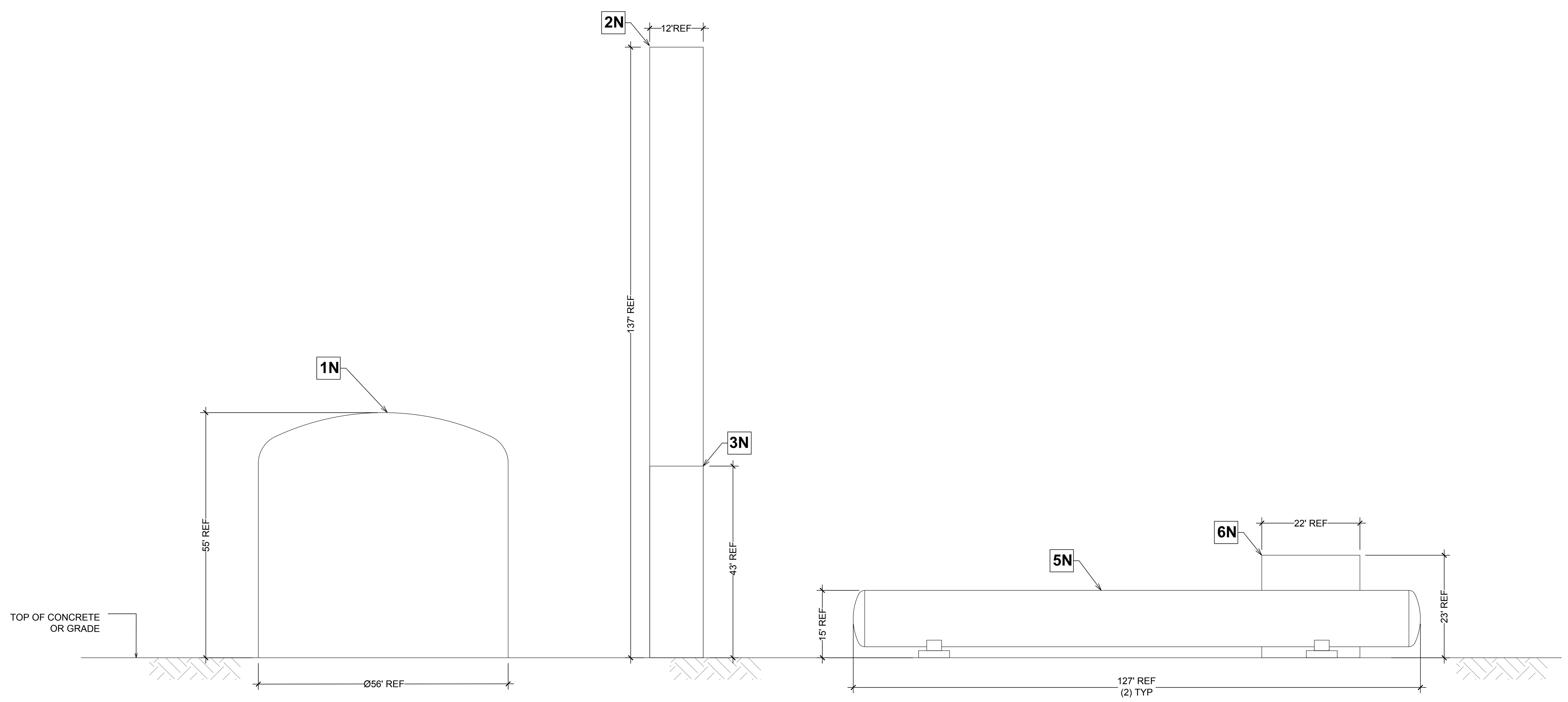
		9N	CIRCULATION PATTERN



MISC EQUIPMENT
NOT SHOWN FOR CLARIFY

2 ELEVATION LOOKING EAST

ELEVATION, SCALE: 1" = 20'-0"

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TOTAL SITE PLAN SHEETS - 5

2D ELEVATIONS

SP4

TOP OF EQUIPMENT ABOVE GRADE, FT	
1N	26 REF
2N	137 REF
5N	15 REF
6N	23 REF
7N	ASSUMED < 15

NOTE:
ELEVATION OF GRADE ASSUMED 0.00 FT

1 EXAMPLE ELEVATION
FOR ILLUSTRATION ONLY

KEYNOTES			
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5E	BUILDING	5N	TANK: LIQUID OXYGEN
6E	FENCE	6N	4-CELL COOLING TOWER
7E	EQUIPMENT YARD	7N	MISC EQUIPMENT
		8N	FILL AREA
		9N	CIRCULATION PATTERN

1

CLIENT

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NORTH AMERICA, LLC

175 E. Park Dr,
Tonawanda, NY 14150

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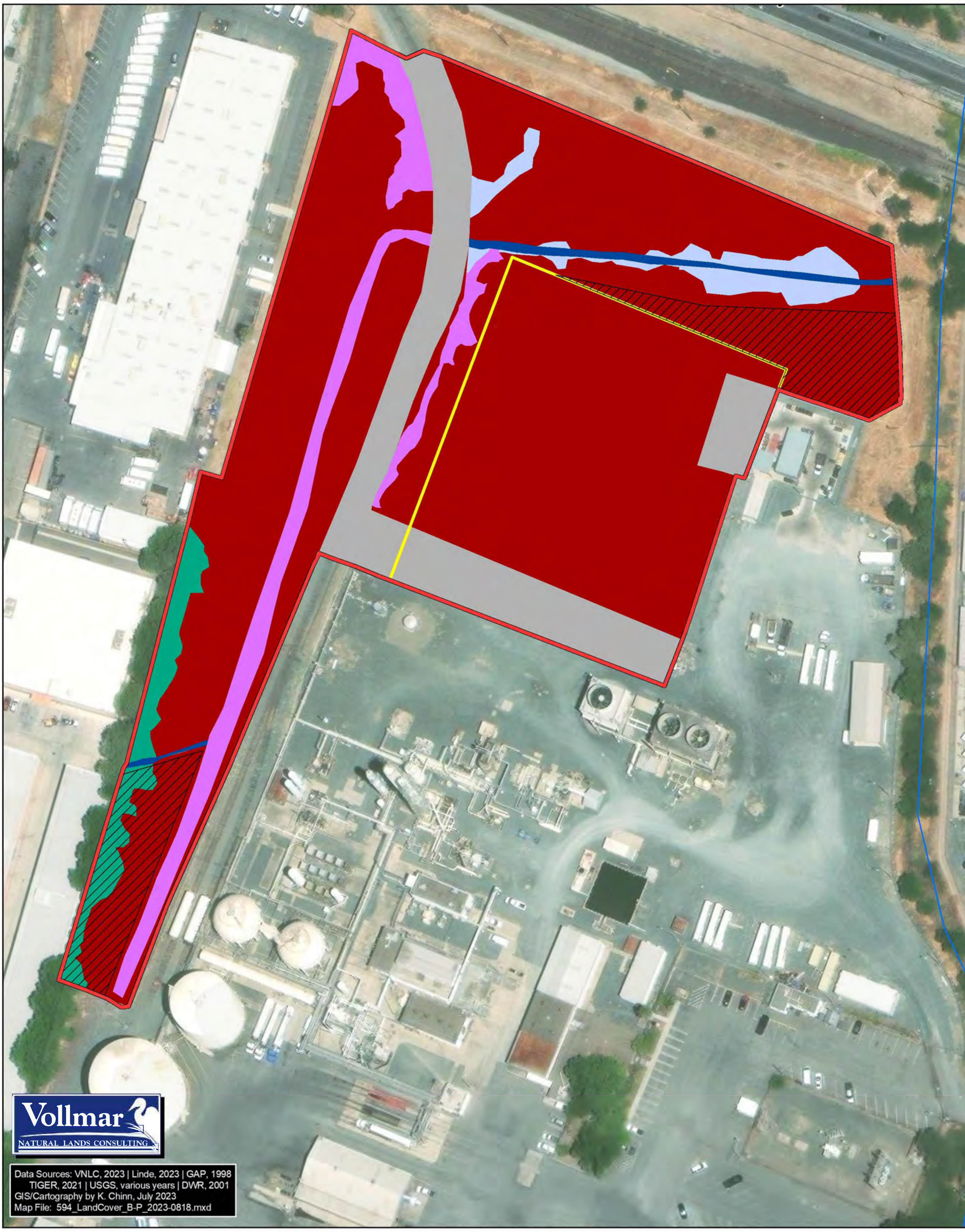
DATE:	March 28, 2023
DESIGNED BY	JH
APPROVED BY	VSG

TOTAL SITE PLAN SHEETS - 5

3D ELEVATION

SP5 1



Legend

- Stream
- Permanent Impact Area
- Temporary Impact Area

HCP/NCCP Land Cover Category

- Nonnative Woodland
- Aquatic
- Riparian
- Ruderal
- Wetland
- Urban

FIGURE 3
Land Cover Map

Oakstone Expansion Project
Contra Costa County, CA

N W E S

1:1,200
(1 in = 100 ft at tabloid layout)

0 10 20 40 Meters

0 50 100 200 Feet

Figure 4: Oakstone Northern California Expansion Project Representative Photographs

Photo 1: Ruderal grassland and riparian woodland/scrub in northeast corner of study area, facing south.

Photo 2: Ruderal grassland, riparian woodland/scrub, and fenceline in central-northeastern portion of study area, facing north.

Figure 4: Oakstone Northern California Expansion Project Representative Photographs

Photo 3: Ruderal grassland and urban in permanent impact area, facing south.

Photo 4: Aquatic drainage feature north of permanent impact area, facing west.

Figure 4: Oakstone Northern California Expansion Project Representative Photographs

Photo 5: Ruderal grassland in temporary impact area and perennial wetland, facing north.

Photo 6: Aquatic feature (ephemeral drainage) north of western temporary impact area, facing west.

Figure 4: Oakstone Northern California Expansion Project Representative Photographs

Photo 7: Northern seasonal wetland, facing north.

Photo 8: Existing fence along approximate permanent impact boundary, facing east.

Figure 4: Oakstone Northern California Expansion Project Representative Photographs

Photo 9: Seasonal wetland adjacent to permanent impact area, facing southeast.

Photo 10: Sediment basin (lacks hydrophytic vegetation and soils) in southeast corner, facing east.

Legend

- Stream
- Highway
- Road
- Study Area
- Burrowing Owl Habitat Survey (500-ft Buffer)
- Swainson's Hawk Habitat Survey (1,000-ft Buffer)
- Golden Eagle Habitat Survey (0.5-mi Buffer)

FIGURE 5
Planning Survey Species Habitat Map

Oakstone Expansion Project
Contra Costa County, CA

N
W E
S

1:9,000
(1 in = 750 ft at tabloid layout)

0 50 100 200 Meters

0 250 500 1,000 Feet

Data Sources: VNLC, 2023 | Linde, 2023 | GAP, 1998
TIGER, 2021 | USGS, various years | DWR, 2001
GIS/Cartography by K. Chinn, July 2023
Map File: 594_SpeciesBuffers_B-P_2023-0825.mxd

ATTACHMENT C: PROJECT COMPLIANCE TO HCP CONDITIONS

Conservation Measure 1.10. Maintain Hydrologic Conditions and Minimize Erosion. All new development must avoid or minimize direct and indirect impacts on local hydrological conditions and erosion by incorporating the applicable Provision C.3 Amendments of the Contra Costa County Clean Water Program's (CCCCWP's) amended NPDES Permit (order no. R2-2003-0022; permit no. CAS002912). The overall goal of this measure is to ensure that new development covered under the HCP has no or minimal adverse effects on downstream fisheries to avoid take of fish listed under ESA or CESA. See HCP pp. 6-21 to 6-22.

Downstream hydrologic effects will be avoided through the implementation of storm-water management treatment controls as detailed in the Stormwater, Erosion, and Environmental Considerations of the project plans (see sheet SP1 of Figure 2 Project Plans).

Conservation Measure 1.11. Avoid Direct Impacts on Extremely Rare Plants, Fully Protected Wildlife Species, or Migratory Birds. This conservation measure applies to all projects. All projects will avoid all impacts on extremely rare plants and fully protected species listed in Table 6-5 of the ECCC HCP/NCCP. See HCP pp. 6-23 to 6-25, and Table 6-5.

The Study Area does not support suitable habitat for extremely rare plants, therefore the project will have no impact on extremely rare plants. The fully protected species golden eagle (*Aquila chrysaetos*) may utilize the Study Area for nesting and foraging, although the highly industrialized and developed project vicinity has limited poor quality suitable nesting or foraging habitat for the species. In addition, the site provides suitable nesting habitat for several bird species whose active nests are protected under provisions of the Migratory Bird Treaty Act and Sections 3503 and 3503.5 of the California Fish and Wildlife Code.

To avoid direct impacts to fully protected wildlife species or covered migratory birds not already addressed in this application, within 14 days of construction activities, a USFWS/CDFW-approved biologist shall conduct preconstruction nesting bird surveys for protected species during the nesting season (February 1-August 31) in suitable habitat within 0.5 mile (golden eagle), 1,000 feet (Swainson's hawk), 500 feet (western burrowing owl), and 250 feet (other raptors, migratory birds) of the construction site, where access is permitted. If an active nest is located, the need and/or extent of no-disturbance buffer(s) around the nest location will be determined through consultation with CDFW to avoid disturbance or destruction of the nest site until after the breeding season or after a qualified biologist determines that the young have fledged. The extent of no-disturbance buffers will depend on the level of noise or disturbance, line of sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers. If it is determined that construction activities will not affect and active nest, activities may proceed without restriction.

Conservation Measure 2.12. Wetland, Pond, and Stream Avoidance and Minimization. All projects will implement measures described in the HCP to avoid and minimize impacts on wetlands, ponds, streams, and riparian woodland/scrub. See HCP pp. 6-33 to 6-35.

- All wetlands, ponds, streams, and riparian woodland/scrub to be avoided by covered activities will be temporarily staked in the field by a qualified biologist.
- Personnel conducting ground-disturbing activities within or adjacent to the buffer zone of wetlands, ponds, streams, or riparian woodland/scrub will be trained by a qualified biologist in these avoidance and minimization measures and the permit obligations of project proponents working under this HCP/NCCP. Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas.
- Trash generated by covered activities will be promptly and properly removed from the site.
- No construction or maintenance vehicles will be refueled within 200 feet of wetlands, ponds, streams, or riparian woodland/scrub unless a bermed and lined refueling area is constructed and hazardous material absorbent pads are available in the event of a spill.
- Appropriate erosion-control measures (e.g., fiber rolls, filter fences, vegetative buffer strips) will be used on site to reduce siltation and runoff of contaminants into wetlands, ponds, streams, or riparian woodland/scrub. Filter fences and mesh will be of material that will not entrap reptiles and amphibians. Erosion control blankets shall be used as a last resort because of their tendency to biodegrade slowly and trap reptiles and amphibians. Erosion-control measures will be placed between the outer edge of the buffer and the project site.
- Fiber rolls used for erosion control will be certified as free of noxious weed seed.

- Seed mixtures applied for erosion control will not contain invasive nonnative species, and will be composed of native species or sterile nonnative species.
- Where feasible, stream crossings will be located in stream segments without riparian vegetation, and bridge footings will be built outside the stream banks (i.e., clear span structures).
- Herbicide will not be applied within 100 feet of wetlands, ponds, streams, or riparian woodland/scrub; however, where appropriate to control serious invasive plants, herbicides that have been approved for use by EPA in or adjacent to aquatic habitats may be used as long as label instructions are followed and applications avoid or minimize impacts on covered species and their habitats. In seasonal or intermittent stream or wetland environments, appropriate herbicides may be applied during the dry season to control nonnative invasive species (e.g., yellow star-thistle). Herbicide drift should be minimized by applying the herbicide as close to the target area as possible.

ATTACHMENT D: FEE CALCULATOR(S)

ECCC HCP/NCCP 2023 Fee Calculator Worksheet
Permanent Impacts

PROJECT APPLICANT: Linde Inc
PROJECT NAME: Oakstone Northern California Expansion Project
APN(s): 073-190-035
JURISDICTION: City of Pittsburg
DATE: August 21, 2023

DEVELOPMENT FEE

See appropriate ordinance or HCP/NCCP Figure 9-1 to determine Fee Zone

	PERMANENT IMPACTS (ACRES)		2023 FEE/ACRE *subject to change* [1]		
Fee Zone 1		x	$19,611.52	=	$0.00
Fee Zone 2		x	$39,223.04	=	$0.00
Fee Zone 3	1.86	x	$9,805.76	=	$18,238.71
Fee Zone 4 [2]		x	$29,417.28	=	$0.00
			Development Fee Total	=	**$18,238.71**

WETLAND MITIGATION FEE

Impacts to riparian/scrub, wetlands, ponds, aquatic, and slough/channel are charged both a wetland mitigation fee and a development fee. Please also include these impact acres to development fee above [3]

	PERMANENT IMPACTS (ACRES)		2023 FEE/ACRE *subject to change* [1]		
Riparian woodland / scrub		x	$110,667.08	=	$0.00
Perennial Wetland		x	$167,718.29	=	$0.00
Seasonal Wetland		x	$392,489.03	=	$0.00
Alkali Wetland		x	$396,778.59	=	$0.00
Ponds		x	$215,976.51	=	$0.00
Aquatic (open water)		x	$107,988.87	=	$0.00
Slough / Channel		x	$154,206.78	=	$0.00

STREAMS	PERMANENT IMPACTS (LINEAR FEET)		2023 FEE/LINEAR FT *subject to change* [1]		
Streams 25 feet wide or less		x	$569.07	=	$0.00
Streams greater than 25 feet wide		x	$854.23	=	$0.00
			Wetland Mitigation Fee Total	=	**$0.00**

FEE REDUCTION[4]

Development Fee reduction for land in lieu of fee	=	
Development Fee reduction (up to 33%) for permanent assessments	=	
Wetland Mitigation Fee reduction for wetland restoration/creation performed by applicant	=	
Reduction Total	=	**$0.00**

FINAL FEE CALCULATION[6]

Development Fee Total		$18,238.71
Wetland Mitigation Fee Total	+	$0.00
Mitigation Fee Subtotal	=	**$18,238.71**
Contribution to Recovery[5]	+	
TOTAL AMOUNT TO BE PAID	=	**$18,238.71**

[1] Development fees are adjusted annually (no later than March 15 of each year) according to a formula that includes both a Home Price Index (HPI) and a Consumer Price Index (CPI). The Wetland Mitigation Fees are adjusted according to a CPI.

[2] Fee Zone 4 is not shown on Figure 9-1 of the HCP/NCCP but refers to the fee applicable to those few covered acitivities located in northeastern Antioch (p. 9-21).

[3] Per Chapter 9.3.1 of the HCP/NCCP, for every acre of impact on wetlands, streams, ponds, and riparian woodland/scrub, applicants will pay the appropriate development fee (according to fee zone) towards land acquisition and the conservation program as a whole, as well as a wetland mitigation fee to cover the costs of successful restoration or creation.

[4] Fee reductions must be reviewed and approved by the Conservancy.

[5] Participating Special Entities (PSEs) are required to pay fees over and above permanent and temporary impact mitigation fees to cover indirect costs of extending permit coverage, including a portion of the costs of the initial preparation of the Plan, and a portion of the costs of conservation actions designed to contribute to species recovery. This amount will be determined in accordance with the Contribution to Recovery Implementation Policy adopted by the Conservancy Governing Board on December 8, 2014.

[6] The Conservancy conducted the periodic fee audit required by the HCP/NCCP in 2023. Action by the County and participating cities is pending, which could result in adjustments to some or all fees

ECCC HCP/NCCP 2023 Fee Calculator Worksheet
Temporary Impacts

PROJECT APPLICANT:	Linde Inc
PROJECT NAME:	Oakstone Northern California Expansion Project
APN(s):	073-190-035
JURISDICTION:	City of Pittsburg
DATE:	August 21, 2023

TEMPORARY IMPACTS DEVELOPMENT FEE

See appropriate ordinance or HCP/NCCP Figure 9-1 to determine Fee Zone

	TEMPORARY IMPACTS (ACRES)		YEARS OF DISTURBANCE *min. shown* [1]			2023 FEE/ACRE *subject to change* [2]		
Fee Zone 1		x	2	/ 30	x	$19,611.52	=	$0.00
Fee Zone 2		x	2	/ 30	x	$39,223.04	=	$0.00
Fee Zone 3	0.73	x	2	/ 30	x	$9,805.76	=	$477.21
Fee Zone 4[3]		x	2	/ 30	x	$29,417.28	=	$0.00
						Development Fee Total	=	**$477.21**

TEMPORARY IMPACTS WETLAND MITIGATION FEE

Impacts to riparian/scrub, wetlands, ponds, aquatic, and slough/channel are charged both a wetland mitigation fee and a development fee. Please also include these impact acres to development fee above.[4]

	TEMPORARY IMPACTS (ACRES)		YEARS OF DISTURBANCE *min. shown* [1]			2023 FEE/ACRE *subject to change* [2]		
Riparian woodland / scrub		x	5	/ 30	x	$110,667.08	=	$0.00
Perennial Wetland		x	2	/ 30	x	$167,718.29	=	$0.00
Seasonal Wetland		x	2	/ 30	x	$392,489.03	=	$0.00
Alkali Wetland		x	2	/ 30	x	$396,778.59	=	$0.00
Ponds		x	2	/ 30	x	$215,976.51	=	$0.00
Aquatic (open water)		x	2	/ 30	x	$107,988.87	=	$0.00
Slough / Channel		x	2	/ 30	x	$154,206.78	=	$0.00

STREAMS	TEMPORARY IMPACTS (ACRES)		YEARS OF DISTURBANCE *min. shown* [1]			FEE/LINEAR FT *subject to change* [2]		
Streams 25 feet wide or less		x	2	/ 30	x	$569.07	=	$0.00
Streams greater than 25 feet wide		x	2	/ 30	x	$854.23	=	$0.00
						Wetland Mitigation Fee Total	=	**$0.00**

FEE REDUCTION[5]

Development Fee reduction for land in lieu of fee	=	
Development Fee reduction (up to 33%) for permanent assessments	=	
Wetland Mitigation Fee reduction for wetland restoration/creation performed by applicant	=	
Reduction Total	=	**$0.00**

FINAL FEE CALCULATION[7]

Development Fee Total		$477.21
Wetland Mitigation Fee Total	+	$0.00
Fee Subtotal	=	**$477.21**
Contribution to Recovery[6]	+	
TOTAL AMOUNT TO BE PAID	=	**$477.21**

[1] Years of disturbance is the number of calendar years in which the activity occurs. For activities that disturb soil, 1 year must be added to each activity interval to account for the longer delay in habitat recovery (e.g. X = 3 if the activity disturbs soil, lasts 2 years, and only occurs once in 30 years).

[2] Development fees are adjusted annually (no later than March 15 of each year) according to a formula that includes both a Home Price Index (HPI) and a Consumer Price Index (CPI). The Wetland Mitigation Fees are adjusted according to a CPI.

[3] Fee Zone 4 is not shown on Figure 9-1 of the HCP/NCCP but refers to the fee applicable to those few covered acitivities located in northeastern Antioch (p. 9-21).

[4] Per Chapter 9.3.1 of the HCP/NCCP, for every acre of impact on wetlands, streams, ponds, and riparian woodland/scrub, applicants will pay the appropriate development fee (according to fee zone) towards land acquisition and the conservation program as a whole, as well as a wetland mitigation fee to cover the costs of successful restoration or creation.

[5] Fee reductions must be reviewed and approved by the Conservancy.

[6] Participating Special Entities (PSEs) are required to pay fees over and above permanent and temporary impact mitigation fees to cover indirect costs of extending permit coverage, including a portion of the costs of the initial preparation of the Plan, and a portion of the costs of conservation actions designed to contribute to species recovery. This amount will be determined in accordance with the Contribution to Recovery Implementation Policy adopted by the Conservancy Governing Board on December 8, 2014.

[7] The Conservancy conducted the periodic fee audit required by the HCP/NCCP in 2023. Action by the County and participating cities is pending, which could result in adjustments to some or all fees

ATTACHMENT E: WETLAND DELINEATION (if applicable)

AQUATIC RESOURCE DELINEATION REPORT

PRAXAIR DISTRIBUTION FACILITY
1900 LOVERIDGE ROAD
PITTSBURG, CONTRA COSTA COUNTY, CALIFORNIA

FEBRUARY 2018

Prepared for:

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COAST RANGE
BIOLOGICAL LLC

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APPENDICES

1.0 INTRODUCTION

Coast Range Biological LLC conducted an aquatic resource delineation to identify the location and extent of waters, including wetlands, potentially subject to jurisdiction by the U.S. Army Corps of Engineers (Corps) under Section 404 of the federal Clean Water Act (CWA) on a ~6-acre portion of the Praxair Distribution Facility located at 1900 Loveridge Road in Pittsburg, Contra Costa County, California ("study area") (Figure 1). The proposed project on the study area involves construction of a ~3,600-ft^2 storage facility (consisting of a double-tiered bulk storage area, covered canopy cylinder storage area, and a paved area between these two facilities) in the east-central portion of the study area, along with associated utility infrastructure, which would enter the study area from the industrial area to the east, as shown on site plans prepared by Aliquot Associates, Inc.

The CWA gives the Corps and Environmental Protection Agency (EPA) jurisdiction over "waters of the United States" which include lakes, rivers, streams (including intermittent or ephemeral streams) and wetlands. "Wetlands" are jointly defined by the Corps and EPA as:

> *"Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas"* (Federal Register 1980; Federal Register 1982).

2.0 METHODS

Prior to the field delineation, available reference materials were reviewed, including the Web Soil Survey (NRCS 2018), the National Wetlands Inventory (USFWS 2018), the National Hydrography Dataset (USGS 2018), topographic maps (USGS 1978), aerial photographs, and project site plans. A routine-level jurisdictional delineation was conducted on the study area on February 14, 2018. The study area was field-checked for indicators of hydrophytic vegetation, wetland hydrology, and hydric soils. Ten sample points were taken on the study area and recorded on Corps data forms provided in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* ("Arid West Manual") (USACE 2008a). Corps data forms are presented in Appendix A.

This aquatic resource delineation was conducted in accordance with the Arid West Manual and the *Corps of Engineers Wetlands Delineation Manual* (Corps Manual) (Environmental Laboratory 1987). Based on the presence or absence of field indicators—including vegetation, hydrology and soils—the limits of potential jurisdictional wetlands and other waters of the U.S. were determined. Potential jurisdictional wetlands were mapped with a Trimble GPS unit (sub-meter accuracy), differentially corrected, and overlain on a digital orthophoto (obtained from NAIP, data in UTM Zone 10, NAD 83 format) using ArcGIS mapping software (Appendix B).

2.1 Hydrophytic Vegetation

Hydrophytic vegetation is defined as "the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present" (Environmental Laboratory 1987). In order to determine if hydrophytic vegetation is present, each

Figure 1. Study area locality map.

plant species occurring in a sample plot is identified and assigned a wetland indicator status (Table 1) based on the *National Wetland Plant List* (Lichvar et al. 2016).

Table 1. Wetland Plant Indicator Status.

Indicator Status Rating	Designation	Qualitative Description (Lichvar et al. 2016)
Obligate (OBL)	Hydrophyte	Almost always occur in wetlands
Facultative Wetland (FACW)	Hydrophyte	Usually occur in wetlands, but may occur in non-wetlands
Facultative (FAC)	Hydrophyte	Occur in wetlands and non-wetlands
Facultative Upland (FACU)	Nonhydrophyte	Usually occur in non-wetlands, but may occur in wetlands
Upland (UPL)	Nonhydrophyte	Almost never occur in wetlands

Plants that have an indicator status of OBL, FACW, and FAC are considered to be typically adapted for life in anaerobic soils conditions, and qualify as hydrophytic species for Section 404 delineations. If more than 50 percent of the dominant plant species present in a sample plot are classified as hydrophytic species (e.g., FAC or wetter), the area has met the hydrophytic vegetation criterion. Dominant species are selected using the "50/20 rule" (USACE 2008a).

2.2 Wetland Hydrology

Wetland hydrology "encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season sufficient to create anaerobic and reducing conditions" (Environmental Laboratory 1987). The jurisdictional wetland hydrology criterion is satisfied if the area supports "*14 or more consecutive days of flooding or ponding, or a water table 12 in. (30 cm) or less below the soil surface, during the growing season at a minimum frequency of 5 years in 10 (50 percent or higher probability)*" (USACE 2008a). If recorded data—such as stream, tidal gauge, or hydrologic monitoring—are lacking, field indicators are used to determine the presence of wetland hydrology. Field indicators include primary indicators, such as observed inundation or saturation, biotic crust, and oxidized rhizospheres on living roots; or secondary indicators, such as drainage patterns and FAC-neutral test. The presence of one primary indicator, or two secondary indicators, is sufficient to conclude that an area has wetland hydrology (USACE 2008a).

2.3 Hydric Soils

Hydric soils are defined by the Natural Resources Conservation Service as "soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part of the soil" (Federal Register 1994). Nearly all hydric soils exhibit characteristic morphologies that result from repeated periods of saturation or inundation, or both, for more than a few days. Characteristic hydric soil indicators observable in the field include: histic epipedons; sulfidic material; aquic or preaquic moisture regime; reducing conditions; iron and manganese concretions; and soil colors (gleyed soils, soils with mottles and/or low chroma matrix). Color designations are determined by comparing a soil sample with a standard Munsell soil color chart (Gretag Macbeth 2000). The presence of any one of the above listed field indicators is considered sufficient to meet the hydric soil criterion.

2.4 Other Waters of the U.S.

In addition to potential jurisdictional wetlands, this study evaluated the presence of any "waters of the U.S." other than wetlands potentially subject to jurisdiction under Section 404 of the CWA. "Other waters" are seasonal or perennial water bodies, such as lakes, stream channels (including intermittent or ephemeral streams), drainages, ponds, and other surface water features that exhibit an Ordinary High Water Mark (OHWM) but lack positive indicators of one or more of the three wetland parameters (hydrophytic vegetation, wetland hydrology, hydric soils) (Federal Register 1986). In non-tidal "other waters," Corps jurisdiction extends to the OHWM, defined as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressions on the bank, shelving, changes in the characteristics of the soil, destruction of terrestrial vegetation, the presence of litter and debris" (Federal Register 1986; USACE 2005; 2008b).

2.5 Limitations

The results of this delineation are preliminary and based on conditions observed during the field visit, and the wetland scientist's interpretation of those conditions and Corps guidelines. Plants that are dominant at the time of this delineation may shift in importance depending on rainfall conditions and season, or population shifts over time. Recent court decisions have added uncertainty to the jurisdictional determination process. The Corps makes the final determination (subject to administrative appeal and judicial review) about the location and extent of wetlands and other waters of the U.S. on the study area. This delineation report should be sent to the Corps for verification, and any required permits obtained, prior to any work conducted in jurisdictional waters. In addition, California state agencies such as the Regional Water Quality Control Board and California Department of Fish and Wildlife may also have jurisdiction over wetlands and other waters on the study area, and permits and/or other approvals should be obtained from these agencies as needed.

3.0 STUDY AREA DESCRIPTION

The study area covers ~6-acres and is located on a portion of the Praxair Distribution Facility at 1900 Loveridge Road in Pittsburg, Contra Costa County, California (Figure 1). The study area consists primarily of undeveloped land that is heavily disturbed by annual mowing and other human disturbance, along with a gravel parking/staging area in the southeastern portion of the study area. The study area is surrounded by a matrix of development, including residential and commercial development to the west, commercial development to the east and south, and railroad tracks, the Pittsburg-Antioch Highway, and a solar power generation facility to the north.

3.1 Vegetation

Four habitats are present on the study area: Non-Native Grassland, Riparian Woodland, Seasonal Wetland, and Developed/Ruderal. Non-native Grassland[1], composed of the *Avena* and other non-native herbaceous Alliances[2], is dominated by non-native grasses and forbs adapted to disturbance, including ripgut brome (*Bromus diandrus*[3]), wild oats (*Avena* sp.), Italian ryegrass (*Festuca perennis*), Italian thistle (*Carduus pycnocephalus*), mustard (*Brassica* sp.), vetch (*Vicia sativa*), redstem filaree (*Erodium cicutarium*), cheese weed (*Malva* sp.), and fennel (*Foeniculum vulgare*), with occasional native species including coyote brush (*Baccharis pilularis*), creeping wildrye (*Elymus triticoides*), and California sagebrush (*Artemisia californica*). Riparian Woodland, composed primarily of the *Populus fremontii* Forest Alliance, is scattered along portions of two drainages on the study area and consists of a canopy of Fremont cottonwood (*Populus fremontii* subsp. *fremontii*), with occasional walnut (*Juglans* sp.), coast live oak (*Quercus agrifolia*), and California buckeye (*Aesculus californica*). Non-native shrubs, including castor bean (*Ricinus communis*) and Himalayan blackberry (*Rubus

[1] Vegetation nomenclature follows Holland (1986).
[2] Alliance nomenclature follows Sawyer et al. (2009).
[3] Botanical nomenclature follows Baldwin et al. (2012) and The Jepson Flora Project (2018).

armeniacus), are present in scattered dense patches within this habitat. Seasonal Wetland is located within portions of the drainages, as well as in a swale in the southwestern corner of the study area. Seasonal Wetland is dominated by wetland-classified herbaceous species including rough cocklebur (*Xanthium strumarium*), Dallis grass (*Paspalum dilatatum*), tall flatsedge (*Cyperus eragrostis*), bristly ox-tongue (*Helminthotheca echioides*), fall panic grass (*Panicum dichotomiflorum* subsp. *dichotomiflorum*), smartweed (*Persicaria* sp.), and poison hemlock (*Conium maculatum*). Developed/Ruderal habitat consists of developed areas associated with the Praxair facility, as well as disturbed, ruderal areas dominated by bare ground or non-native herbaceous species adapted to disturbance (described above for Non-Native Grassland).

3.2 Hydrology

The principal hydrologic sources for the study area are direct precipitation, surface sheet flow from surrounding uplands, and channelized flow through two unnamed drainage channels located in the eastern and northern portions of the study area. The eastern drainage (hereafter referred to as Drainage 1) flows northbound along the eastern study area boundary, off the study area, and eventually into New York Slough, located along the San Joaquin River, a Traditional Navigable Water (TNW) (Appendix B). The northern drainage (hereafter referred to as Drainage 2) flows eastbound along the northern portion of the study area, and discharges directly into Drainage 1. Drainage 1 was mapped in the National Hydrography Dataset (NHD) (USGS 2018) and the USGS Antioch North 7.5' topographic quadrangle (USGS 1978) (Figure 2). No wetlands were mapped for the study area in the National Wetlands Inventory (NWI) (USFWS 2018). During the February 14, 2018 delineation, Drainage 1 had scattered ponding throughout the channel, while Drainage 2 was dry along the entire reach on the study area.

3.3 Geology, Climate, and Soils

The study area is underlain by marine and non-marine (continental) sedimentary rocks of Pleistocene age (older alluvium, lake, playa, and terrace deposits) (California Geological Survey 2010). The study area occurs in level terrain at ~35 feet elevation (USGS 1978) (Figure 2). Average annual precipitation for the region is 19.37 inches, occurring primarily between October and May (Western Regional Climate Center 2018).

One soil type has been mapped on the study area (NRCS 2018a): Capay clay, 0 to 3 percent slopes, MLRA 17. This soil type is moderately well-drained, derived from clayey alluvium from metamorphic and sedimentary rock, and is found on alluvial fans and stream terraces. It consists of clay from 0 to 51 inches and silty clay loam from 51 to 72 inches of soil profile. The depth to water table and a restrictive feature is >80 inches below the surface. This soil is listed as hydric for Contra Costa County when containing Marcuse components in depressional landforms (NRCS 2018b). A soil map of the study area is included in Appendix C.

4.0 RESULTS

4.1 Aquatic Resources

Three potential jurisdictional wetlands and one potential jurisdictional "other waters" were delineated on the study area during the February 14, 2018 delineation. These features are discussed below and are summarized in Table 2. Delineation datasheets are included in Appendix A, a map of potential jurisdictional waters is included in Appendix B, and study area photographs are included in Appendix

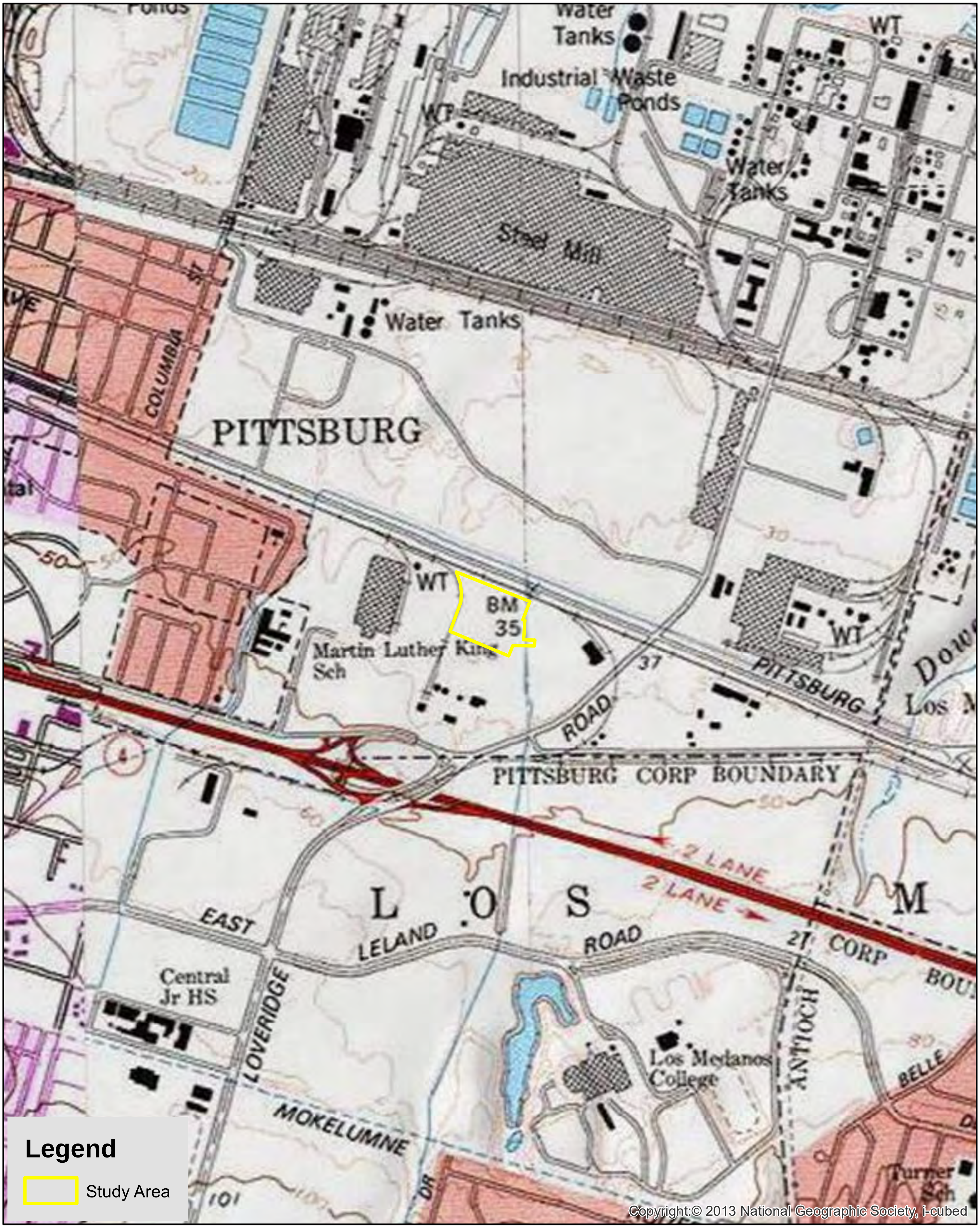

Figure 2. Topographic map of the study area.

Basemap: USGS 7.5' Antioch North, CA Quad
Study Area: T2N,R1E,sec16, Mt. Diablo Meridian
Lat/Lon: 38.015269°N, 121.864667 °W

Mapscale: 1:12,000

0 500 1,000 2,000 Feet

N

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D. A list of all plant species observed on the study area, and their wetland indicator status, is included in Appendix E.

Table 2. Aquatic Resources Delineated on the Study Area.

Feature Name	Area (ft^2)	Length/ Ave. Width	Sample Point	Hydric Soils	Wetland Hydro	Hydro-phytic Veg	Bed/ Bank/ OHWM	Significant Nexus to TNW	Cowardin Class	Lat/Lon
Potential Jurisdictional Wetlands										
Wetland 1	2,175	N/A	1a, 2a	X	X	X	Yes	Yes (drains into New York Slough, a TNW); RPW	R4SB7[4]	38.015216, -121.863799
Wetland 2	337	N/A	3a	X	X	X	Yes	Yes (drains via OW 1 into Wetland 1)	PEM2[5]	38.015880, -121.865197
Wetland 3	1,241	N/A	4a	X	X	X	No	Yes, drains via sheet flow into Wetland 2	PEM2	38.015316, -121.865599
Potential Jurisdictional Other Waters										
OW 1	1,304	396 ft. (L)/ 3 ft. (W)	2c	X	X		Yes	Drains into Wetland 1 and eventually into New York Slough, a TNW; NRPW	R4SB7	38.015870, -121.864873

4.1.1 Potential Jurisdictional Wetlands

<u>Wetland 1</u>

Wetland 1 covers 2,175 ft^2 (0.05-acre) and occurs within Drainage 1 (Table 2; Appendix B, D-1). Wetland 1 is dominated by hydrophytic vegetation, including Dallis grass, tall flatsedge, and smartweed (Sample Point 1a, 2a). Hydric soil indicators are present throughout Wetland 1, such as Redox Dark Surface (F6), as well as wetland hydrology indicators, including Drainage Patterns (B10) and Riverine Water Marks (B1), Sediment Deposits (B2), and Drift Deposits (B3). Adjacent uplands occur on steep slopes on channel banks, and are dominated by upland species such as wild oats and Italian thistle, and lack wetland hydrology and hydric soil indicators (Sample Point 1b).

Wetland 1 occurs within Drainage 1, which had scattered ponding throughout the channel. The field visit occurred during a rainy season with below-average precipitation. During a normal rainfall year, the drainage likely supports seasonal flow, and would be classified as a Relatively Permanent Water (RPW). Drainage 1 flows northbound off the study area and eventually into New York Slough, located along the San Joaquin River, a TNW (Appendix B).

[4] Vegetated, Streambed, Intermittent, Riverine
[5] Palustrine Emergent, Nonpersistent

Wetland 2

Wetland 2 covers 337 ft^2 (0.008-acre) and occurs within Drainage 2 (Table 2; Appendix B, D-3). Wetland 2 is dominated by hydrophytic vegetation, including rough cocklebur (Sample Point 3a). Hydric soil indicators are present throughout Wetland 2, such as Redox Dark Surface (F6), as well as wetland hydrology indicators, including Sediment Deposits (B2) and Oxidized Rhizospheres along Living Roots (C3). Adjacent uplands occur in a level field above the channel, and are dominated by upland species such as Italian thistle and geranium, and lack wetland hydrology and hydric soil indicators (Sample Point 3b).

Wetland 2 drains into Other Waters 1, which discharges directly into Drainage 1. Drainage 1 flows northbound off the study area and eventually into New York Slough, located along the San Joaquin River, a TNW.

Wetland 3

Wetland 3 covers 1,241 ft^2 (0.03-acre) and occurs within a swale along the western study area boundary that receives runoff from the industrial area to the south (Table 2; Appendix B, D-4). Wetland 3 is dominated by hydrophytic vegetation, including bristly ox-tongue (Sample Point 4a). Hydric soil indicators are present throughout Wetland 3, such as Redox Dark Surface (F6), as well as wetland hydrology indicators, including Sediment Deposits (B2) and Surface Soil Cracks (B6). Adjacent uplands occur in a field above the swale, and are dominated by upland species such as wild oats, and lack wetland hydrology and hydric soil indicators (Sample Point 4b).

Wetland 3 drains into Wetland 2 via surface and near-surface flow (Wetland 3 is not directly connected to Wetland 2, but shallow concave topography and areas of matted vegetation indicate likely surface and near-surface flow from Wetland 3 to Wetland 2 during rain events). Wetland 2 drains into Other Waters 1 and Drainage 1. Drainage 1 flows northbound off the study area and eventually into New York Slough, located along the San Joaquin River, a TNW.

4.1.2 Potential Jurisdictional Other Waters

Other Waters 1

Other Waters 1 occurs within Drainage 2. Other Waters 1 covers 1,304 ft^2 (0.03-acre), with a length of 396 feet and an average width of 3 feet on the study area (Table 2; Appendix B, D-2). Other Waters 1 supports a narrow bed, bank, and OHWM (scour, sediment deposits, matted vegetation), but lacks a preponderance of hydrophytic vegetation. Vegetation is occasionally present, but covers less than five percent of the channel and/or is dominated by upland species (Sample Point 2c). Hydric soil indicators are present throughout Other Waters 1, such as Redox Dark Surface (F6), as well as wetland hydrology indicators, including Oxidized Rhizospheres along Living Roots (C3), Drainage Patterns (B10), and Riverine Water Marks (B1), Sediment Deposits (B2), and Drift Deposits (B3) (Sample Point 2c).

Other Waters 1 was dry during the February 14, 2018 field visit, and likely supports only ephemeral hydrology, flowing after rain events. Therefore, it would likely be classified as a Non-Relatively Permanent Water (NRPW). Other Waters 1 discharges directly into Drainage 1. Drainage 1 flows northbound off the study area and eventually into New York Slough, located along the San Joaquin River, a TNW.

5.0 POTENTIAL CORPS JURISDICTION

Three potential jurisdictional wetlands and one potential jurisdictional "other waters" were delineated on the study area (Table 2; Appendix B). All four potential jurisdictional waters have a nexus to a TNW.

The proposed project on the study area involves construction of a ~3,600-ft^2 storage facility (consisting of a double-tiered bulk storage area, covered canopy cylinder storage area, and a paved area between these two facilities) in the east-central portion of the study area, along with associated utility infrastructure, which would enter the study area from the industrial area to the east. Based on current project plans, the storage facility is located outside of potential jurisdictional waters, and the utility infrastructure will access the study area via boring under Drainage 1. However, Corps and other agency jurisdiction should be verified prior to project ground disturbance.

Discharge of dredged or fill material within Corps jurisdiction normally requires a permit under Section 404 of the federal CWA. In addition, the Corps, under Section 401 of the federal CWA, is required to meet state water quality regulations prior to granting a Section 404 permit. This is accomplished by application to the local Regional Water Quality Control Board (RWQCB) for Section 401 certification (or waiver) that requirements have been met. RWQCB jurisdiction under Section 401 of the CWA would extend to the OHWM. In addition, the RWQCB could have jurisdiction over "waters of the State" up to the top of bank of Drainages 1 and 2 and over "isolated" or other wetlands exempt from Corps jurisdiction under the Porter-Cologne Water Quality Control Act. Streams, rivers, and lakes up to the top of bank or dripline of riparian vegetation (whichever is greater) also fall within the jurisdiction of the California Department of Fish and Wildlife (CDFW). CDFW jurisdiction would extend to the top of bank of the drainages or limit of riparian vegetation, whichever is greater. Work within CDFW jurisdiction normally requires a Streambed Alteration Agreement.

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APPENDIX A

CORPS DELINEATION DATA FORMS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Praxair Distribution Facility City/County: Pittsburg/Contra Costa Co. Sampling Date: 2/14/18

Applicant/Owner: Praxair State: CA Sampling Point: 1a

Investigator(s): T. Mahony, Coast Range Biological LLC Section, Township, Range: Mt. Diablo Meridian T2N,R1E,sec16

Landform (hillslope, terrace, etc.): drainage Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR): LRR C Lat: 38.014853 Long: -121.863802 Datum: NAD 83

Soil Map Unit Name: Capay clay, 0 to 3 percent slopes, MLRA 17 NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✓ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ✓ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:

Lower than average rainfall year. Seasonal wetland hydrology naturally problematic. Located in a drainage with a bed, bank, and OHWM. Drainage had >5% veg cover, and all three parameters met, so delineated as a wetland rather than "other waters".

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 5')			
1. Ricinus communis	5	N	FACU
2.			
3.			
4.			
5.			
= Total Cover	5		
Herb Stratum (Plot size: 5')			
1. Cyperus eragrostis	20	Y	FACW
2. Persicaria sp.	15	Y	FAC-OB
3. Paspalum dilatatum	15	Y	FAC
4. Geranium dissectum	1	N	UPL
5.			
6.			
7.			
8.			
= Total Cover	51		
Woody Vine Stratum (Plot size: 5')			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 50 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

Sample point dominated by hydrophytic vegetation.

SOIL

Sampling Point: 1a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 3/2	90	10YR 5/6	10	C	M	silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): ______

Hydric Soil Present? Yes ✓ No ______

Remarks:

Hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ✓ Water Marks (B1) (**Riverine**)
- ✓ Sediment Deposits (B2) (**Riverine**)
- ✓ Drift Deposits (B3) (**Riverine**)
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): none

Water Table Present? Yes ______ No ✓ Depth (inches): none

Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): none

Wetland Hydrology Present? Yes ✓ No ______

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

None

Remarks:

Located in drainage channel with bed, bank, and OHWM (shelving, drift deposits, matted vegetation). Drains northbound along eastern study area boundary and off the study area. Drainage was dry over some of its length but had scattered deep (6-12 inches) pools.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Praxair Distribution Facility City/County: Pittsburg/Contra Costa Co. Sampling Date: 2/14/18

Applicant/Owner: Praxair State: CA Sampling Point: 1b

Investigator(s): T. Mahony, Coast Range Biological LLC Section, Township, Range: Mt. Diablo Meridian T2N,R1E,sec16

Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): convex Slope (%): 90

Subregion (LRR): LRR C Lat: 38.014859 Long: -121.863769 Datum: NAD 83

Soil Map Unit Name: Capay clay, 0 to 3 percent slopes, MLRA 17 NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No ✓ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ✓ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No ✓
Hydric Soil Present?	Yes ___	No ✓
Wetland Hydrology Present?	Yes ___	No ✓

Is the Sampled Area within a Wetland? **Yes** ___ **No** ✓

Remarks:

Lower than average rainfall year. Seasonal wetland hydrology naturally problematic. Sample point located on steep slope above drainage channel. No wetland parameters met.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5')			
1. Carduus pycnocephalus	10	N	UPL
2. Avena sp.	80	Y	UPL
3. Vicia sativa	5	N	FACU
4.			
5.			
6.			
7.			
8.			
= Total Cover	95		
Woody Vine Stratum (Plot size: 5')			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ___ **No** ✓

Remarks:

Sample point dominated by upland vegetation. Some grasses not identifiable due to season.

SOIL

Sampling Point: 1b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 3/2	100	none				loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: none
Depth (inches): ______

Hydric Soil Present? Yes ____ No ✓

Remarks:

No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): none
Water Table Present? Yes ____ No ✓ Depth (inches): none
Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): none

Wetland Hydrology Present? Yes ____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

None

Remarks:

Located on well-drained slope above channel. No wetland hydrology indicators observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Praxair Distribution Facility City/County: Pittsburg/Contra Costa Co. Sampling Date: 2/14/18

Applicant/Owner: Praxair State: CA Sampling Point: 2a

Investigator(s): T. Mahony, Coast Range Biological LLC Section, Township, Range: Mt. Diablo Meridian T2N,R1E,sec16

Landform (hillslope, terrace, etc.): drainage Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): LRR C Lat: 38.015780 Long: -121.863731 Datum: NAD 83

Soil Map Unit Name: Capay clay, 0 to 3 percent slopes, MLRA 17 NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No ✓ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ✓ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ___
Hydric Soil Present?	Yes ✓	No ___
Wetland Hydrology Present?	Yes ✓	No ___

Is the Sampled Area within a Wetland? **Yes** ✓ **No** ___

Remarks:

Lower than average rainfall year. Seasonal wetland hydrology naturally problematic. Located in a drainage with a bed, bank, and OHWM. Drainage had >5% veg cover, and all three parameters met, so delineated as a wetland rather than "other waters".

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5')			
1. Cyperus eragrostis	20	Y	FACW
2. Paspalum dilatatum	20	Y	FAC
3. Xanthium strumarium	2	N	FAC
4. Geranium dissectum	1	N	UPL
5. Panicum dichotomiflorum	2	N	FACW
6.			
7.			
8.			
= Total Cover	45		
Woody Vine Stratum (Plot size: 5')			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 60 % Cover of Biotic Crust ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ✓ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

Remarks:

Sample point dominated by hydrophytic vegetation.

SOIL

Sampling Point: 2a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	100	none				sandy clay	
6-20	10YR 3/1	90	10YR 5/6	10	C	M	clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: clay

Depth (inches): 6"

Hydric Soil Present? Yes ✓ No ______

Remarks:

Hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ✓ Water Marks (B1) (**Riverine**)
- ✓ Sediment Deposits (B2) (**Riverine**)
- ✓ Drift Deposits (B3) (**Riverine**)
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ______	No ✓	Depth (inches): none
Water Table Present?	Yes ______	No ✓	Depth (inches): none
Saturation Present? (includes capillary fringe)	Yes ______	No ✓	Depth (inches): none

Wetland Hydrology Present? Yes ✓ No ______

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

None

Remarks:

Located in drainage channel with bed, bank, and OHWM (shelving, drift deposits, matted vegetation). Drains northbound along eastern study area boundary and off the study area. Drainage was dry over some of its length but had scattered deep (6-12 inches) pools.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Praxair Distribution Facility City/County: Pittsburg/Contra Costa Co. Sampling Date: 2/14/18

Applicant/Owner: Praxair State: CA Sampling Point: 2b

Investigator(s): T. Mahony, Coast Range Biological LLC Section, Township, Range: Mt. Diablo Meridian T2N,R1E,sec16

Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): convex Slope (%): 50

Subregion (LRR): LRR C Lat: 38.015780 Long: -121.863755 Datum: NAD 83

Soil Map Unit Name: Capay clay, 0 to 3 percent slopes, MLRA 17 NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✓ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ✓ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✓
Hydric Soil Present?	Yes ____	No ✓
Wetland Hydrology Present?	Yes ____	No ✓

Is the Sampled Area within a Wetland? Yes ____ No ✓

Remarks:

Lower than average rainfall year. Seasonal wetland hydrology naturally problematic. Sample point located on steep slope above drainage channel. No wetland parameters met.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5')			
1. Geranium dissectum	30	Y	UPL
2. Avena sp.	30	Y	UPL
3. Bromus diandrus	30	Y	UPL
4.			
5.			
6.			
7.			
8.			
= Total Cover	90		
Woody Vine Stratum (Plot size: 5')			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

Sample point dominated by upland vegetation. Some grasses not identifiable due to season.

SOIL

Sampling Point: 2b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 3/3	100	none				loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** ✓

Remarks:

No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No ✓	Depth (inches): none
Water Table Present?	Yes ___	No ✓	Depth (inches): none
Saturation Present? (includes capillary fringe)	Yes ___	No ✓	Depth (inches): none

Wetland Hydrology Present? **Yes** ___ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

None

Remarks:

Located on well-drained slope above channel. No wetland hydrology indicators observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Praxair Distribution Facility City/County: Pittsburg/Contra Costa Co. Sampling Date: 2/14/18

Applicant/Owner: Praxair State: CA Sampling Point: 2c

Investigator(s): T. Mahony, Coast Range Biological LLC Section, Township, Range: Mt. Diablo Meridian T2N,R1E,sec16

Landform (hillslope, terrace, etc.): drainage Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): LRR C Lat: 38.015765 Long: -121.863777 Datum: NAD 83

Soil Map Unit Name: Capay clay, 0 to 3 percent slopes, MLRA 17 NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✓ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ✓ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		✓
Hydric Soil Present?	✓	
Wetland Hydrology Present?	✓	

Is the Sampled Area within a Wetland? Yes ____ No ✓

Remarks:

Lower than average rainfall year. Seasonal wetland hydrology naturally problematic. Drainage channel contains bed, bank, and OHWM and two wetland parameters and drains eastbound into larger drainage at Sample Point 2a. Potential jurisdictional "other waters".

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5')			
1. Carduus pycnocephalus	5	N	UPL
2. Malva sp.	5	N	UPL
3. Geranium dissectum	15	Y	UPL
4. Avena sp.	10	Y	UPL
5. Convolvulus arvensis	2	N	UPL
6. Conium maculatum	2	N	FACW
7.			
8.			
= Total Cover	39		
Woody Vine Stratum (Plot size: 5')			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 60 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species	2	x 2 = 4
FAC species		x 3 =
FACU species		x 4 =
UPL species	37	x 5 = 185
Column Totals:	39 (A)	189 (B)

Prevalence Index = B/A = 4.85

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

Sample point dominated by upland vegetation.

SOIL

Sampling Point: 2c

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 3/1	85	10YR 5/6	15	C	M	clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): ______

Hydric Soil Present? Yes ✓ No ______

Remarks:

Hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ✓ Water Marks (B1) (**Riverine**)
- ✓ Sediment Deposits (B2) (**Riverine**)
- ✓ Drift Deposits (B3) (**Riverine**)
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ______	No ✓	Depth (inches): none
Water Table Present?	Yes ______	No ✓	Depth (inches): none
Saturation Present? (includes capillary fringe)	Yes ______	No ✓	Depth (inches): none

Wetland Hydrology Present? Yes ✓ No ______

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

None

Remarks:

Sample point located in narrow (~3' wide) channel, with a bed, bank, and OHWM (scour, sediment deposits, matted vegetation). Drains eastbound into Drainage 1 at Sample Point 2a.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Praxair Distribution Facility City/County: Pittsburg/Contra Costa Co. Sampling Date: 2/14/18

Applicant/Owner: Praxair State: CA Sampling Point: 3a

Investigator(s): T. Mahony, Coast Range Biological LLC Section, Township, Range: Mt. Diablo Meridian T2N,R1E,sec16

Landform (hillslope, terrace, etc.): drainage Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR): LRR C Lat: 38.015896 Long: -121.865306 Datum: NAD 83

Soil Map Unit Name: Capay clay, 0 to 3 percent slopes, MLRA 17 NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✓ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ✓ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____
Hydric Soil Present?	Yes ✓	No ____
Wetland Hydrology Present?	Yes ✓	No ____

Is the Sampled Area within a Wetland? **Yes** ✓ **No** ____

Remarks:

Lower than average rainfall year. Seasonal wetland hydrology naturally problematic. Located in a drainage with >5% veg cover, and all three parameters met, so delineated as a wetland rather than "other waters".

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5')			
1. Cyperus eragrostis	10	N	FACW
2. Xanthium strumarium	60	Y	FAC
3. Geranium dissectum	10	N	UPL
4. Conium maculatum	10	N	FACW
5. Convolvulus arvensis	2	N	UPL
6.			
7.			
8.			
= Total Cover	92		
Woody Vine Stratum (Plot size: 5')			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ____

Remarks:

Sample point dominated by hydrophytic vegetation.

SOIL

Sampling Point: 3a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/2	95	10YR 4/6	5	C	M	clay loam	
6-20	10YR 3/2	90	10YR 4/6	10	C	M	silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): ______

Hydric Soil Present? Yes ✓ No ___

Remarks:

Hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ✓ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): none

Water Table Present? Yes ___ No ✓ Depth (inches): none

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): none

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

None

Remarks:

Located in narrow drainage channel with weak bed, bank, and OHWM below culvert outfall. Drains eastbound into Drainage 1. Drainage was dry during field visit.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Praxair Distribution Facility City/County: Pittsburg/Contra Costa Co. Sampling Date: 2/14/18

Applicant/Owner: Praxair State: CA Sampling Point: 3b

Investigator(s): T. Mahony, Coast Range Biological LLC Section, Township, Range: Mt. Diablo Meridian T2N,R1E,sec16

Landform (hillslope, terrace, etc.): level field Local relief (concave, convex, none): none Slope (%): 2

Subregion (LRR): LRR C Lat: 38.015868 Long: -121.865299 Datum: NAD 83

Soil Map Unit Name: Capay clay, 0 to 3 percent slopes, MLRA 17 NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✓ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ✓ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✓
Hydric Soil Present?	Yes ____	No ✓
Wetland Hydrology Present?	Yes ____	No ✓

Is the Sampled Area within a Wetland? **Yes** ____ **No** ✓

Remarks:

Lower than average rainfall year. Seasonal wetland hydrology naturally problematic. Sample point located in level field above drainage channel. No wetland parameters met.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5')			
1. Carduus pycnocephalus	35	Y	UPL
2. Geranium dissectum	35	Y	UPL
3. Convolvulus arvensis	5	N	UPL
4. Torilis arvensis	10	N	UPL
5. Galium sp.	5	N	
6.			
7.			
8.			
= Total Cover	90		
Woody Vine Stratum (Plot size: 5')			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** ✓

Remarks:

Sample point dominated by upland vegetation. Some grasses not identifiable due to season.

SOIL

Sampling Point: 3b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 3/3	100	none				clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): ___

Hydric Soil Present? Yes ___ No ✓

Remarks:

No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): none

Water Table Present? Yes ___ No ✓ Depth (inches): none

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): none

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

None

Remarks:

Located in level field above channel. No wetland hydrology indicators observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Praxair Distribution Facility City/County: Pittsburg/Contra Costa Co. Sampling Date: 2/14/18

Applicant/Owner: Praxair State: CA Sampling Point: 4a

Investigator(s): T. Mahony, Coast Range Biological LLC Section, Township, Range: Mt. Diablo Meridian T2N,R1E,sec16

Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): LRR C Lat: 38.015357 Long: -121.865570 Datum: NAD 83

Soil Map Unit Name: Capay clay, 0 to 3 percent slopes, MLRA 17 NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No ✓ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ✓ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ___	Is the Sampled Area within a Wetland? Yes ✓ No ___
Hydric Soil Present?	Yes ✓ No ___	
Wetland Hydrology Present?	Yes ✓ No ___	

Remarks:

Lower than average rainfall year. Seasonal wetland hydrology naturally problematic. Located in a swale. All three wetland parameters met. Drains via surface and near-surface flow into wetland at Sample Point 3a.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5')			
1. Helminthotheca echioides	45	Y	FAC
2. Geranium dissectum	5	N	UPL
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	50		
Woody Vine Stratum (Plot size: 5')			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 50 % Cover of Biotic Crust ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks:

Sample point dominated by hydrophytic vegetation.

SOIL

Sampling Point: 4a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 3/2	85	10YR 5/6	15	C	M	clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
✓ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): ______

Hydric Soil Present? Yes ✓ No ______

Remarks:

Hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
✓ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
✓ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): none
Water Table Present? Yes ______ No ✓ Depth (inches): none
Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): none

Wetland Hydrology Present? Yes ✓ No ______

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

None

Remarks:

Located in swale that drains northbound into wetland at Sample Point 3a. Hydrologically connected to downstream wetland via surface and near-surface flow during rain events (based on shallow concave topography and areas of matted vegetation). Receives runoff from industrial area to the south.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Praxair Distribution Facility City/County: Pittsburg/Contra Costa Co. Sampling Date: 2/14/18

Applicant/Owner: Praxair State: CA Sampling Point: 4b

Investigator(s): T. Mahony, Coast Range Biological LLC Section, Township, Range: Mt. Diablo Meridian T2N,R1E,sec16

Landform (hillslope, terrace, etc.): level field Local relief (concave, convex, none): none Slope (%): 2

Subregion (LRR): LRR C Lat: 38.015345 Long: -121.865522 Datum: NAD 83

Soil Map Unit Name: Capay clay, 0 to 3 percent slopes, MLRA 17 NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No ✓ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ✓ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		✓
Hydric Soil Present?		✓
Wetland Hydrology Present?		✓

Is the Sampled Area within a Wetland? Yes ___ No ✓

Remarks:

Lower than average rainfall year. Seasonal wetland hydrology naturally problematic. Sample point located in level field above swale. No wetland parameters met.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10')

	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			

Sapling/Shrub Stratum (Plot size: 5')

	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
= Total Cover			

Herb Stratum (Plot size: 5')

	Absolute % Cover	Dominant Species?	Indicator Status
1. Avena sp.	80	Y	UPL
2. Geranium dissectum	1	N	UPL
3. Brassica sp.	5	N	UPL
4. Erodium cicutarium	1	N	UPL
5. Unidentifiable Grasses	10	N	
6.			
7.			
8.			
= Total Cover	97		

Woody Vine Stratum (Plot size: 5')

	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks:

Sample point dominated by upland vegetation. Some grasses not identifiable due to season.

SOIL

Sampling Point: 4b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 3/3	100	none				clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): ______

Hydric Soil Present? Yes ______ No ✓

Remarks:

No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): none

Water Table Present? Yes ______ No ✓ Depth (inches): none

Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): none

Wetland Hydrology Present? Yes ______ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

None

Remarks:

Located in level field above swale. No wetland hydrology indicators observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Praxair Distribution Facility City/County: Pittsburg/Contra Costa Co. Sampling Date: 2/14/18

Applicant/Owner: Praxair State: CA Sampling Point: 5

Investigator(s): T. Mahony, Coast Range Biological LLC Section, Township, Range: Mt. Diablo Meridian T2N,R1E,sec16

Landform (hillslope, terrace, etc.): man-made basin Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): LRR C Lat: 38.014835 Long: -121.864607 Datum: NAD 83

Soil Map Unit Name: Capay clay, 0 to 3 percent slopes, MLRA 17 NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✓ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ✓ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		✓
Hydric Soil Present?		✓
Wetland Hydrology Present?	✓	

Is the Sampled Area within a Wetland? Yes ____ No ✓

Remarks:

Lower than average rainfall year. Seasonal wetland hydrology naturally problematic. Located in man-made basin. Water likely collects in basin before entering culvert in east side of basin. No hydrophytic vegetation or hydric soils observed.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5')			
1. Centaurea solstitialis	10	Y	UPL
2. Helminthotheca echioides	10	Y	FAC
3. Geranium dissectum	2	N	UPL
4. Malvella sp?	2	N	
5.			
6.			
7.			
8.			
= Total Cover	24		
Woody Vine Stratum (Plot size: 5')			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 80 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species	10	x 3 = 30
FACU species		x 4 =
UPL species	12	x 5 = 60
Column Totals:	22 (A)	90 (B)

Prevalence Index = B/A = 4.1

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

Sample point not dominated by hydrophytic vegetation.

SOIL

Sampling Point: 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/3	100	none				clay	many non-native rock fragments

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hardpan

Depth (inches): 6"

Hydric Soil Present? Yes ______ No ✓

Remarks:

No hydric soil indicators observed. Soil difficult to interpret due to disturbance and presence of fill material (gravel and pebble rock fragments).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
✓ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): none

Water Table Present? Yes ______ No ✓ Depth (inches): none

Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): none

Wetland Hydrology Present? Yes ✓ No ______

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

None

Remarks:

Located in man-made basin that receives runoff via sheet flow from field to the west. Likely holds some water after rain events, then discharges into culvert.

APPENDIX B

DELINEATION MAP OF THE STUDY AREA

Appendix B. Delineation map of the study area.
Praxair Study Area, Pittsburg, Contra Costa County.
T2N,R1E,sec16, 38.015269°N, 121.864667 °W

Map Prepared by: T. Mahony
Map Date: 2/20/18
Orthophoto: NAIP

APPENDIX C

SOIL MAP OF THE STUDY AREA

Soil Map—Contra Costa County, California
(praxair_studyarea)

Map Scale: 1:1,600 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0, 20, 40, 80, 120

Feet: 0, 50, 100, 200, 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Contra Costa County, California
Survey Area Data: Version 14, Sep 25, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 2, 2015—Jun 3, 2015

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CaA	Capay clay, 0 to 3 percent slopes, MLRA 17	6.1	100.0%
Totals for Area of Interest		**6.1**	**100.0%**

APPENDIX D

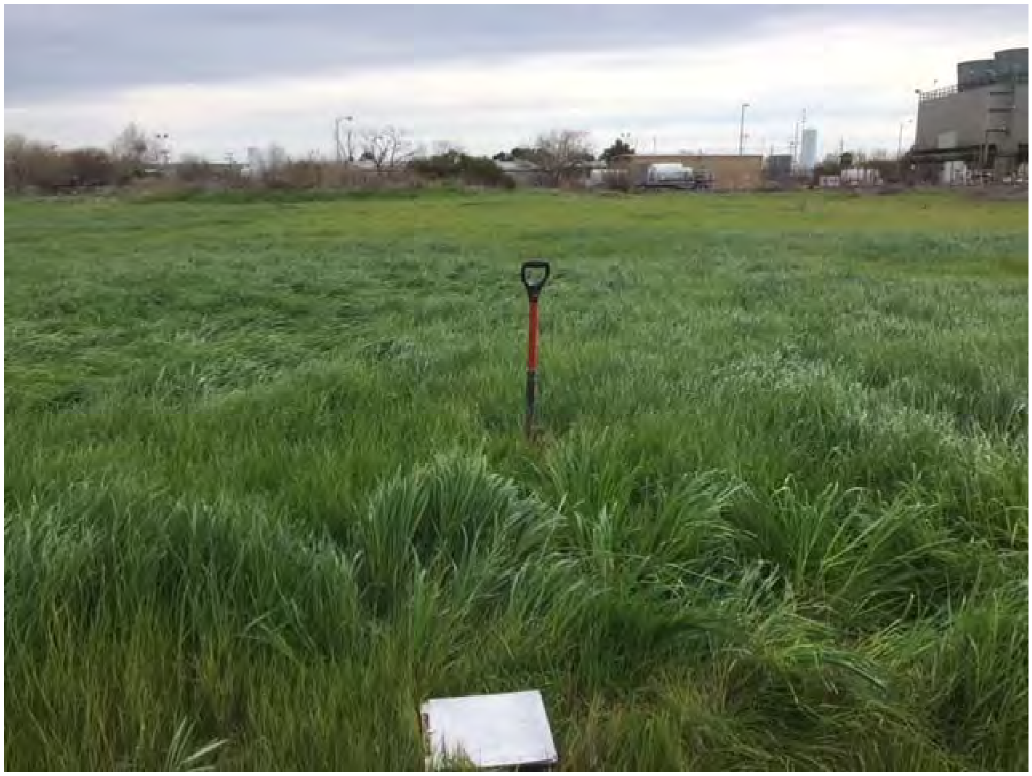
PHOTOGRAPHS OF THE STUDY AREA

Appendix D-1. Wetland 1 in Drainage 1, looking north (downstream) at Sample Point 1a.

Appendix D-2. Other Waters 1 in Drainage 2 where it discharges into Drainage 1/Wetland 1, looking east (downstream) at Sample Point 2c.

Appendix D-3. Seasonal Wetland habitat in Wetland 2, located in Drainage 2, looking upstream (west) at Sample Point 3a.

Appendix D-4. Seasonal Wetland habitat in Wetland 3, looking upstream (south), at Sample Point 4a.



Appendix D-5. Non-Native Grassland, which covers most of the study area, looking east, at Sample Point 4b.

Appendix D-6. Man-made basin with culvert inlet, lacking hydrophytic vegetation, with Developed/Ruderal habitat in background, looking east at Sample Point 5.

APPENDIX E

PLANT SPECIES OBSERVED ON THE STUDY AREA AND THEIR WETLAND INDICATOR STATUS

Appendix E. Plant species observed on the study area and their wetland indicator status.

Scientific Name	Common Name	Wetland Indicator Status (Lichvar et al. 2016)
Aesculus californica	California buckeye	UPL
Artemisia californica	California sagebrush	UPL
Avena sp.*	wild oats	UPL
Baccharis pilularis	coyote brush	UPL
Brassica sp.*	mustard	UPL
*Bromus diandrus**	ripgut brome	UPL
*Carduus pycnocephalus**	Italian thistle	UPL
*Centaurea solstitialis**	yellow star-thistle	UPL
*Conium maculatum**	poison hemlock	FACW
*Convolvulus arvensis**	field bindweed	UPL
Cyperus eragrostis	tall flatsedge	FACW
Elymus triticoides	creeping wild rye	FAC
*Erodium cicutarium**	redstem filaree	UPL
*Festuca perennis**	Italian ryegrass	FAC
*Foeniculum vulgare**	fennel	UPL
Galium sp.	bedstraw	
*Geranium dissectum**	cutleaf geranium	UPL
*Helminthotheca echioides**	bristly ox-tongue	FAC
Juglans sp.*	walnut	UPL-FAC
Malva sp.*	mallow	UPL
Malvella leprosa (?)	alkali mallow	FACU
*Nicotiana glauca**	tree tobacco	FAC
*Oxalis pes-caprae**	Bermuda buttercup	UPL
Panicum dichotomiflorum subsp. *dichotomiflorum**	fall panic grass	FACW
*Paspalum dilatatum**	Dallis grass	FAC
Persicaria sp.	smartweed	FAC-OBL
Populus fremontii subsp. *fremontii*	Fremont cottonwood	UPL
Quercus agrifolia	coast live oak	UPL
*Ricinus communis**	castor bean	FACU
*Rubus armeniacus**	Himalayan blackberry	FAC
*Rumex crispus**	curly dock	FAC
*Silybum marianum**	milk thistle	UPL
*Torilis arvensis**	field hedge-parsley	UPL
Trifolium sp.	clover	
*Vicia sativa**	common vetch	FACU
Xanthium strumarium	rough cocklebur	FAC
* = non-native species		

APPENDIX D

CULTURAL RESOURCES TECHNICAL MEMORANDUM

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CULTURAL RESOURCES TECHNICAL MEMORANDUM

Date: July 3rd, 2023
To: RCH Group
From: Solano Archaeological Services, LLC

Subject: Project Oakstone Northern California Expansion Project, City of Pittsburg, Contra Costa County, California

INTRODUCTION

This technical memorandum summarizes the background research, Native American community outreach, archaeological survey, and study findings for the proposed Oakstone Northern California Expansion Project (the Project) located in the City of Pittsburg, in Contra Costa County, California (Attachment A, Figure 1). The Project is subject to California Environmental Quality Act (CEQA) requirements, and Solano Archaeological Services, LLC (SAS) has prepared this report to support compliance with the cultural resources provisions of CEQA.

PROJECT LOCATION

The project area consists of 6.62 acres (ac.) at 2000 Loveridge Road, in an area generally bounded by a rail line (Southern Pacific Railroad [SPRR]) to the north, commercial and industrial development to the west, California Avenue to the South, and Loveridge Road to the east (Attachment A, Figure 1). The project area is depicted on the *Antioch North, California* U.S. Geological Survey (USGS) topographic 7.5 minute quadrangle in the Saucelito land grant in projected Township 2 North, Range 1 East, Section 10 in the Los Medanos Land Grant (Attachment A, Figures 2, 3).

PROJECT DESCRIPTION

Linde Inc. is proposing to expand in the Northern California industrial gas market by building a new plant at the company's existing facility in Pittsburg. The new facility will simply expand current production of liquid nitrogen, oxygen, and argon. No additional or new products will be produced. The liquid products will be distributed via truck to the San Francisco Bay Area market, the Central Valley, and into nearby states. The proposed project will necessitate the expansion of an existing substation with PG&E oversight). A new cooling water treatment system will have one approximately 250-gallon double walled tank for sulfuric acid (used to control pH), sodium hypochlorite (bleach, used to control algae growth), and smaller tanks for 1–2 other specialized cooling water chemicals. Delivery trucks will use an existing fuel island.

REGULATORY SETTING

CEQA requires that public agencies having authority to finance or approve public or private projects assess the effects of those projects on cultural resources. Cultural resources include buildings, sites, structures, objects, or districts, each of which may have historical, architectural, archaeological, cultural, or scientific significance. CEQA states that if a proposed project would result in an effect that may cause a substantial adverse change in the significance of a significant cultural resource (termed a "historical resource"), alternative plans or mitigation measures must be considered. Because only significant cultural resources need to be addressed, the significance of cultural resources must be determined before mitigation measures are developed.

CEQA §5024.1 (Public Resources Code [PRC] §5024.1) and §15064.5 of the State CEQA Guidelines (14 California Code of Regulations [CCR] §15064.5) define a *historical resource* as "a resource listed or eligible for listing on the California Register of Historical Resources." A historical resource may be eligible for inclusion in the California Register of Historical Resources if it:

1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage
2) Is associated with the lives of persons important to our past
3) Embodies the distinctive characteristics of a type, period, region, or method of construction represents the work of an important creative individual; or possesses high artistic values; or
4) Has yielded, or may be likely to yield, information important to prehistory or history

In addition, CEQA also distinguishes between two classes of archaeological resources: archaeological sites that meet the definition of a historical resource, and "unique archaeological resources." An archaeological resource is considered unique if it:

- Is associated with an event or person of recognized significance in California or American history or of recognized scientific importance in prehistory
- Can provide information that is of demonstrable public interest and is useful in addressing scientifically consequential and reasonable research questions
- Has a special or particular quality such as oldest, best example, largest, or last surviving example of its kind
- Is at least 100 years old and possesses substantial stratigraphic integrity; or
- Involves important research questions that historical research has shown can be answered only with archaeological methods (Public Resources Code §21083.2)

According to the CEQA Guidelines, a project with an effect that may cause a substantial adverse change in the significance of a historical resource, or a unique archaeological resource is a project that may have a significant effect on the environment (14 CCR §15064.5[b]). CEQA further states that a substantial adverse change in the significance of a resource means the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired.

NATURAL AND CULTURAL SETTING

Existing Environment

The climatic pattern in the project area and surrounding region is characterized as Mediterranean, with cool, wet winters and hot, dry summers. Soil studies suggest that the general climate may have been wetter in the past but periods of persistent drought in California occurred between 912–1112, and 1210–1350 (Tanksley 2003). Shorter drought periods have also been documented over the last 2,000 years using dendrochronology, soil core borings, and other methods.

The dominant natural vegetative communities in the vicinity of the project area include prairie grasslands and tule marshes, with some areas of riparian woodland also being present (Kuchler 1977). Tule marshes are characterized by stands of tules, cattails, sedges, rushes, and clumps of willows. Vegetation tends to be sparse in the prairie grasslands and is generally limited to grasses and flowering herbs. However, valley oaks are found in the grasslands, and each can produce 300–500 pounds of acorns on an annual basis (Baumhoff 1963). Tule marshes provided a diverse array of faunal and floral resources including tule roots that were ground into an edible meal (Wallace 1978). Native Americans burned off the grasslands annually to increase the following year's seed crop (Cook 1960), and tule supplied reeds for a diverse array of uses such as housing, clothing, rafts, and baskets.

Prehistoric Setting

Native American occupation and use of the greater Bay Area, including the regions comprising present-day Pittsburg extends to over 5,000 to 7,000 years and possibly longer. Research during the 1930s identified temporal periods in central California prehistory and provided an initial chronological sequence. In the late 1940s and early 1950s, Richard Beardsley of the University of California Berkeley documented similarities in artifacts among sites in the San Francisco Bay region and the Delta and refined his findings into a cultural model that ultimately became known as the Central California Taxonomic System (CCTS) which proposed a uniform, linear sequence of cultural succession (Beardsley 1948)

To address flaws in the CCTS system, David Fredrickson introduced a revision that incorporated a system of spatial and cultural integrative units. Fredrickson separated cultural, temporal, and spatial units from each other and assigned them to six chronological periods: PaleoIndian (12,000 to 8,000 years before the present day [BP]); Lower, Middle and Upper Archaic (8,000 BP to 1,500 BP), and Emergent (Upper and Lower, 1,500 BP to 1800). The suggested temporal ranges are similar to earlier horizons, which were broad cultural units that could be arranged in a temporal sequence (Fredrickson 1973, 1974). In addition, Fredrickson defined several patterns—a general way of life shared within a specific geographical region. These patterns consist of the Windmiller Pattern or Early Horizon (5,000 to 3,000 BP), the Berkeley Pattern or Middle Horizon (3,000 BP to 1,500 BP), and the Augustine Pattern or Late Horizon (1,500 BP to historic period) (see Fredrickson 1973 for elaborations on these patterns/horizons).

The Paleo-Archaic-Emergent cultural sequence developed by Fredrickson (1974) is still commonly used to interpret the prehistoric occupation of Central California. However, research by Groza (2002), LaJeunesse and Pryor (1996), and Meyer and Rosenthal (1997) using radiocarbon dates have updated Fredrickson's interpretation to delineate the cultural sequence into the following periods: the Paleo-Indian period (13,550 to 10,550 BP); the three-staged Archaic period, consisting of the Lower Archaic (10,550 to 7,550 BP), Middle Archaic (7,550 to 2,550 BP), and Upper Archaic (2,550 BP to 900 BP); and the Emergent period (1100 to 1769).

The Paleo-Indian period began with the first entry of people into California, with the Central Valley area settled by native Californians as early as 13,500 years ago (Rosenthal et al. 2007). Population numbers during the Paleo-Indian period were low and probably consisted of small groups moving frequently in order to exploit plant and animal resources. Current research, however, indicates more sedentism, plant processing, and trading than previously believed.

The Archaic period is characterized by increased use of plant foods, elaboration of grave goods, and increasingly complex trade networks (Bennyhoff and Fredrickson 1994; Moratto 1984). The Emergent period is marked by the introduction of the bow and arrow, the ascendance of wealth-linked social status, and the elaboration and expansion of trade networks, signified in part by the appearance of clam disk bead money (Moratto 1984).

Penutian populations migrated into central California around 4,500 years ago and were firmly settled in the Bay Area by 1500 (Moratto 1984). During the Emergent period, ancestors of the Ohlone entered the region and occupied the area from the Carquinez Strait south to Point Sur (Kroeber 1925; Levy 1978). This area was dominated by freshwater marshes and wetlands at the bay margin, oak groves and grasslands at the base of adjacent hills, and redwood groves in the hills. In the Bay Area to the north of the project area vicinity, many villages were established by 4,000 BP. Village sites, commonly located along perennial waterways or adjacent to resource-rich bayshore and marsh habitats, often had deep stratified deposits of shellfish and other remains from repeated occupations over time. The introduction of the bow and arrow, harpoon, and the use of clam disk beads as currency for trade are just a few indications that populations were larger and more densely settled (Moratto1984).

Ethnographic Context

The project area and immediate surrounding lands are situated within an area traditionally occupied by the Bay Miwok cultural group. Two other Native American cultures, the Northern Valley Yokuts, and the Plains Miwok probably also inhabited territory within or very near the project area. Over time, late prehistoric, and ethnographic period tribal boundaries were likely fluid to some extent and with the project area being at the intersection of multiple tribal boundaries, more than likely all of these groups inhabited the present-day Pittsburg area or at least exploited the diverse resources provided in the region adjacent to Suisun Bay just to the north. Consequently, much of what is currently expressed in the anthropological literature represents tribal boundaries at one point in time only; that period in the historic past when early Spanish and Mexican accounts discuss the cultural affinities of the local indigenous populations, and shortly thereafter when structured ethnographic studies began to occur.

Bay Miwok

The Bay Miwok occupied the eastern portions of what is now Contra Costa County, from Mount Diablo northeast into the Sacramento-San Joaquin Delta. They were skilled hunters and food collectors who lived in a favorable environment that was rich in all manner of floral and faunal resources. The populations living adjacent to the bays and waterways relied heavily on shellfish and aquatic animals for their primary sustenance. Plant foods were gathered on a seasonal basis, with acorns being the most important staple because they could be stored in great quantity and processed into various forms. Tools and ornaments were manufactured from stone, bone, and shell typically obtained from local sources, and their basketry was well developed in terms of style and form. The Bay Miwok were also known to have cultivated a form of tobacco and domesticated the dog (Kroeber 1925; Levy 1978).

The Bay Miwok had several types of structures with semi-subterranean, earth-covered dwellings serving as winter homes. Other structures included sweathouses, acorn granaries, and conical grinding huts over bedrock mortars. The focal point of most ritual and social gatherings were large semi-subterranean structures where significant political and spiritual events were often housed. These buildings were constructed in the largest villages that once the Mission period began, were quickly abandoned. The Bay Miwok were some of the first Miwok peoples to be missionized and the largest group went to Mission San Jose. Unfortunately, structured ethnographic data for the San Francisco Bay Area is not extensive and much of what is known of the traditional lifeways of the Bay Miwok has been gleaned from oral histories and the accounts of Spanish and Mexican missionaries, and military expeditions. Regardless, it appears that much of the aboriginal lifestyle was severely impacted by the introduction of Euro-American diseases, a declining birth rate, and ultimately, the mission system (Bennyhoff 1977; Kroeber 1925; Levy 1978; Milliken 1995).

The project area is within a region specifically occupied by the *Julpun* tribelet of the Bay Miwok who inhabited the south shore of Suisun Bay extending from Port Chicago to the mouth of Marsh Creek on the west, with the tribelet center of *Chupcan* located about 3.5 miles (mi.) east-northeast of the project area on the south bank of the San Joaquin River channel (Bennyhoff 1977; Levy 1978). Permanent villages such as *Chupcan*, and *San Ricardo* several mi. further to the east were usually surrounded by a number of temporary and seasonal camps. Politically autonomous, the groups of 50–500 individuals in each tribelet followed an annual round of subsistence activities focused on the gathering of botanical, riparian, and aquatic resources. In addition, trade was common with other groups in the region, including those located within the Central Valley, and in the Sierra Nevada.

Historic Period Setting

Spanish Period

Although Spanish expeditions to the California coastline date to the 16th and early 17th centuries (e.g., Juan Rodriguez Cabrillo in 1542, Sebastian Rodriguez Cermeño in 1595, and Sebastián Vizcaino in 1602), the conventional date for the beginning of the Spanish Period in California is 1769, the date of the founding of the first mission, Mission San Diego de Alcalá. Spanish exploration of the San Francisco Peninsula and surrounding lands also began in 1769 when Gaspar de Portola led his expedition into Alta California to explore Monterey Bay. In 1774, Fray Palou joined the expedition of Don Fernando de Rivera y Moncada to identify potential mission sites, and Juan Bautista de Anza followed with a similar expedition in 1776 (Beck and Haase 1976).

Spanish colonial policy from 1769–1821 was directed at the founding of presidios, missions, and secular towns, with the land held by the Crown. The depletion of the coastal native populations resulted in Spanish missionaries shifting to conversion of the interior peoples. The Bay Miwok were the first of the Eastern Miwok to be missionized, and were generally not willing converts. Mission baptismal records show that Native Americans went to Mission San Francisco de Assisi, founded in 1776, and Mission San Jose, founded in 1797. Their traditional lifeways apparently disappeared by about 1810 due to disruptions of disease, a declining birth rate, and the general impact of the mission system.

Mexican Period

The Mexican Period (1821 to 1848) was marked by secularization and division of mission lands among the Californios as land grants, termed *ranchos*. During this period, Mariano Vallejo assumed authority of Sonoma Mission and established a rapport with the Native Americans who were living there. In particular, Vallejo worked closely with Chief Solano, a Patwin who served as Vallejo’s spokesman when problems with Native American tribes arose. The large rancho lands often were worked by Native Americans who were used as forced labor.

Shoup and Milliken (1999) state that mission secularization removed the social protection and support on which Native Americans had come to rely. It exposed them to further exploitation by outside interests, often forcing them into a marginal existence as laborers for large ranchos. Following mission secularization, the Mexican population grew as the Native American population continued to decline. Euro-American settlers began to arrive in California during this period and often married into Mexican families, becoming Mexican citizens, which made them eligible to receive massive land grants from the Mexican government. One of these, Rancho Los Medanos, incorporated the project area. This 8,859-ac. grant was provided to Jose Antonio Mesa (the son of Corporal José Valerio Mesa who came to California with the 1776 de Anza Expedition) and Jose Miguel Garcia in 1835 by Governor Juan Alvarado.

In 1846, on the eve of the U.S.-Mexican War (1846 to 1848), the estimated population of California was 8,000 non-natives and 10,000 Native Americans. However, these estimates have been debated. Cook (1976) suggests the Native American population was 100,000 in 1850 but the U.S. Census of 1880 reports the Native American population at 20,385.

American Expansion and Contra Costa County

The east side of San Francisco Bay, directly across from the City of San Francisco, became known as the “opposite coast” (or *contra costa*) by the Spanish. The county was formed in December of 1849 and is one of the original 27 California counties, with the seat in Martinez (Hoover et al. 2002). Contra Costa County, like much of California, was seen as a land of economic opportunity, not just for its mining resources but also for its productive land where farmers could cultivate a variety of crops. Agriculture became a significant portion of the California economy in the late 1850s, and homesteading became a means by which people could own and operate a family farm. By the early 1880s, special interests advertised the County's virtues as a place to cultivate. Early settlers began to speak of beneficial soils that supported a range of crops—pears, prunes, peaches, almonds, walnuts and grapes flourished—with seasonal rainfall, and favorable climates. In addition, Contra Costa County was strategically located at crossing of trade routes with a waterfront location and relative closeness to the San Francisco metropolis. Large-scale commercial operations began to capitalize on mechanical innovations just as irrigation developed in the early 1880s. Consequently, competing economic interests caused land prices to increase and make family farming a less profitable enterprise.

By the mid-20th century agriculture began to give way to commercial and residential land uses. In the 1960s and 1970s, large companies followed their employees to suburban areas east of San Francisco. The establishment of large population centers fostered the development of equally large shopping centers. To meet demand on infrastructure, the State modernized highways and roadways, and with the establishment of the Bay Area Rapid Transit (BART) system, the urbanization trajectory for the region was complete.

City of Pittsburg

The City can trace its historic foundation to 1849 when Colonel Jonathan D. Stevenson (from New York) purchased land in the area and laid out a town he called the New York of the Pacific (Durham 1998). Stevenson was likely drawn to the area as it was the midway stopping point for schooners traveling from San Francisco and their passengers headed to the gold country further inland. Fishing, farming, and cattle raising for the hide and tallow industry were the major economic activities during this time (City of Pittsburg 2022) but in 1859, coal was discovered in the nearby town of Nortonville. The Black Diamond Coal Mining Company commenced operations, building a rail line to Nortonville with present-day Pittsburg being the main shipping point (Durham 1998). The local coal boom ended in 1885, when the company moved to Washington state to work a new claim.

Despite the coal boom having long since ended, in 1903 the town was incorporated and renamed "Black Diamond", after the mining firm. Fishing, transportation, and agriculture, however, constituted the foundation of the area's economy until Columbia Steel Company opened its California steel plant in the town in 1910. It made steel castings for the dredging, lumber and shipping industries (Durham 1998). In recognition of the new dominant local industry, the town's name was changed to "Pittsburg" in 1911 honoring Pittsburgh, Pennsylvania, as the two cities shared a common steel and mining industrial heritage (City of Pittsburg 2022). The Pittsburg plant continued to grow under various owners and by the late 1990s, the facility employed nearly 1,000 workers and shipped over 1.6 million U.S. tons per year of steel to over 175 customers in the Western U. S., Mexico, Canada and the Pacific Rim (Heredia 1999). However, as of 2023, the entire facility has closed and been purchased by Amazon for the establishment of a product fulfillment center, ending over a century of steel manufacture in the City.

NATIVE AMERICAN COMMUNITY OUTREACH

The PRC Sections 21080.1, 21080.3.1, and 21080.3.2 require public agencies to consult with the appropriate California Native American tribes identified by the Native American Heritage Commission (NAHC) for the purpose of mitigating impacts to cultural resources. To meet PRC requirements, on May 31st, 2023, SAS emailed a letter and a map depicting the project area and surrounding vicinity to the NAHC requesting a Sacred Lands File (SLF) search, and a list of Native American community representatives who might have an interest in, or concerns with the proposed Project (Attachment B). On June 27th, 2023, the NAHC responded to SAS stating that the SLF did not contain any information on sensitive Native American cultural properties within or near the project area. The NAHC also provided contact information for the following individuals:

- Amah Mutsun Tribal Band of Mission San Juan Bautista - Irene Zwierlein, Chairperson
- Chicken Ranch Rancheria of Me-Wuk Indians - Lloyd Mathiesen, Chairperson

- Guidiville Rancheria of California - Michael Derry, Historian
- Guidiville Rancheria of California - Bunny Tarin, Tribal Administrator
- Indian Canyon Mutsun Band of Costanoan - Ann Marie Sayers, Chairperson
- Indian Canyon Mutsun Band of Costanoan - Kanyon Sayers-Roods, Most Likely Descendent
- Muwekma Ohlone Indian Tribe of the San Francisco Bay Area - Monica Arellano, Vice Chair
- Muwekma Ohlone Indian Tribe of the San Francisco Bay Area - Charlene Nijmeh, Chairperson
- Nashville Enterprise Miwok-Maidu-Nishinam Tribe - Cosme Valdez, Chairperson
- North Valley Yokuts Tribe - Katherine Perez, Chairperson
- North Valley Yokuts Tribe - Timothy Perez
- The Ohlone Indian Tribe - Andrew Galvan, Chairperson
- Wilton Rancheria - Steven Hutchason, Tribal Historic Preservation Officer
- Wilton Rancheria - Jesus Tarango, Chairperson
- Wilton Rancheria - Dahlton Brown, Director of Administration
- Confederated Villages of Lisjan Nation - Deja Gould, Language Program Manager
- Confederated Villages of Lisjan Nation - Corrina Gould, Chairperson
- Confederated Villages of Lisjan Nation - Cheyenne Gould, Tribal Cultural Resource Manager

SAS contacted each of the individuals listed above by letter on July 3rd, 2023, inquiring if they had any knowledge of culturally sensitive properties or archaeological sites within or near the project area. As of this report, SAS has not received any replies to the mailed letters. However, if substantive contacts are made at a later date, SAS will prepare an addendum to this report as necessary.

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM RECORDS SEARCH

On June 7th, 2023, the Northwest Information Center (NWIC) of the California Historical Resources Information System, provided the results of a record search for the Project (NWIC File No. 22-1174) (Attachment C). The NWIC indicated that no cultural resources were known to be present within the project area but 17 resources had been documented within a 1/4-mile search area. These resources consisted of the SPRR line (07-000813) at the north boundary of the project area, one school, one industrial building, two electrical transmission lines, one bridge, and 11 private residences. The NWIC research also reported that five previous cultural resources studies included at least a portion of the current project area, and an additional eight investigations have occurred within the 1/4-mile search area.

ADDITIONAL RESEARCH

To ascertain patterns of land ownership and use within the project area and identify potential undocumented sites, cultural deposits, and sensitive landforms, SAS conducted additional archival research focused on historical mapping and land transfer records. This consisted of reviews of the Bureau of Land Management's General Land Office (GLO) archives including patent records and plat maps, historical USGS topographic quadrangle maps, and other archival sources.

Starting in the early 1850s, the U.S. General Land Office started conducting widespread mapping of lands within California, as well as throughout the western United States. These "plat" maps of townships, ranges, and sections typically depicted major landforms, waterways, historic-era developments such as ranches, farms, and associated buildings, and occasionally provided assessments of the suitability of land for livestock grazing, agriculture, or timber harvesting. However, the GLO typically did not survey land grant properties, and this was the case with Township 2 North, Range 1 East (within which the project area is located). Consequently, no man-made features or natural landmarks were depicted on the only GLO plat of the area, dating to 1870.

Apart from surveying government lands, the GLO was also responsible for selling, granting, or otherwise transferring public lands to private, corporate, or institutional recipients. Numerous regulatory frameworks governed and provided for these transfers including the 1851 California Land Act (9 Stat. 631). The California Land Act was instituted following the Treaty of Guadalupe Hidalgo and the admission of California as a state in 1850. This Act stablished a three-member Public Land Commission to determine the validity of prior Spanish and Mexican land grants. It required landowners who claimed title under the Mexican government to file their claim with a commission within two years. Contrary to the Treaty of Guadalupe Hidalgo, which guaranteed full protection of all property rights for Mexican citizens, it placed the burden on landholders to prove their title. While the commission eventually confirmed 604 of the 813 claims, almost all of the claims went to court and resulted in protracted litigation. The expense of the long court battles required many land holders to sell portions of the property or trade it in payment for legal services and a few cases were litigated into the 1940s (Gates 1971). It was under this act that Ellen Fallon, Michael Murray, Jonathan D. Sevenson, and James Welch were formally granted the 8,858-ac. Rancho Los Medanos in 1872.

Aerial photography dating to as early as 1949 shows that little development, other than the construction of the SPRR line and some roadways had occurred in the immediate vicinity of the project area by that time. However, by 1957 (the next available aerial photographs), development can be seen encroaching on the project area (e.g., California Avenue to the south). Sometime between 1964, and 1966, an industrial facility at the project area and the presently existing SPRR spur to that location are shown. Historic USGS mapping also reflects this pattern of development with little other than the SPRR being depicted on the 1908, 1914, 1918, 1936, 1943, 1947, 1951, or 1955 topographic quadrangles. One minor natural feature, a generally north-south trending seasonal drainage was depicted on these maps but in 1960 that drainage is no longer depicted. The first USGS map showing the plant and rail spur visible on the 1966 aerial photographs dates to 1969.

FIELD SURVEY

Methods

On June 26th, 2023, SAS archaeologists Karena Skinner and Deandra DiBene conducted an intensive pedestrian survey of the project area utilizing pedestrian transects spaced no greater than 15 meters apart. The field team took representative digital photographs of the project area, and thoroughly videoed and photographed any discovered resources. A 2-3 meter accurate GPS unit (Samsung Galaxy Tablet with *Avenza* application) was utilized to verify the project area perimeter and document resource boundaries as appropriate.

Results

With the exception of a narrow north–south strip occupied by a railroad spur, virtually the entire project area was covered in dense seasonal grasses, weeds, and low shrubs. Ground surface visibility in the project area was low at approximately 0–5%. Small patches of rodent burrows and erosional areas along the rail line and some portions of the project boundary exposed traces of subsurface soils but no cultural material or indications of sensitive soil deposits or sensitive landforms (e.g., midden) were noted. The SAS field team documented one historic-era resource within the project area; the rail spur off the main SPRR Line that generally constitutes the project area's northern boundary (Figures 4, 5) (Attachment D). Representative photographs of the project area are provided in Attachment E.

SAS-001

This standard-gauge rail spur extends from the SPRR line that generally constitutes the project area's northern boundary, to the south and outside of the project area. It was constructed sometime between 1964, and 1966 and exhibits typical 20th century rail line construction and materials such as crushed basalt gravel ballast, treated wood ties, steel rails, spikes, and tie plates. The gravel rail bed measures approximately 36 ft. wide at the base and about 25 ft. wide on top and sits approximately 3 or 4 ft. above the surrounding landscape. The spur forks into two parallel tracks for the southernmost 300 ft. of its length and the entire alignment is presently in use and well maintained. A pile of approximately six wood ties, each about 13 ft. in length, near the point where the spur connects to the main SPRR line in the northwestern-most portion of the project area.

CALIFORNIA REGISTER OF HISTORICAL RESOURCES EVALUATION

The railroad spur identified in the project area is directly associated with the SPRR, a resource presently listed on the NRHP. Although this spur is part of the larger SPRR system in the San Francisco Bay Area, it was built long after the SPRRs early 20th century period of significance and with SAS-001 having been built around 1965 it is not considering a contributing element to the rail system from that time. Consequently SAS-001 is not recommended eligible for CRHR listing under Criterion 1. Also, while many historically significant individuals were associated with the planning, financing, management, and construction of the SPRR, none of these people are directly associated with this late and commonplace short spur segment. Consequently, SAS recommends SAS-001 not eligible for CRHR listing under Criterion 2. In addition, railroad spurs such as SAS-001 are common features throughout the entire nation-wide SPRR system and this example is hardly the earliest or best example of its type, nor does it exhibit any unique or unusual engineering features or other characteristics. As such, SAS recommends SAS-001 not eligible for CRHR listing under Criterion 3. Lastly, although additional research might shed further light on the exact date of the spur's construction and background, it is unlikely that any further information would elevate this simple spur line to a historically significant level. As such, SAS recommends that SAS-001's data potential has been fully realized through the present level of documentation and is not eligible for CRHR listing under Criterion 4.

SUMMARY AND RECOMMENDATIONS

Archival research and an intensive field survey did not identify any significant (per CRHR criteria) prehistoric or historic-period cultural resources within the project area. Map and aerial photography reviews show only a small seasonal drainage in the project area. While such drainages have been the focus of prehistoric habitation and activities, no evidence has been uncovered suggesting this unremarkable channel was ever subject to even short-term early Native American occupation. However, the proximity of the San Joaquin River to the north and several ethnographic settlements to the east suggest the general area was occupied and the vicinity of the project area was probably exploited for a diverse array of natural resources. As such, SAS recommends that the project are exhibits a low/moderate level of sensitivity for retaining traces of early Native American activity. Concerning historic period resources, historic mapping, aerial photographs, and archival research indicate that no developments occurred within the project area prior to the mid-1960s. Consequently, there is very little chance that any intact and potentially significant historic-era resources pre-dating the mid-20th century could be present within the project area. Due to a lack of identified cultural resources and sensitive landforms, SAS recommends that the proposed project would have *no impact on historical resources* per CEQA.

If human remains or any associated funerary artifacts are discovered during construction, all work must cease within the immediate vicinity of the discovery. In accordance with the California Health and Safety Code (Section 7050.5), the Contra Costa County Sheriff/Coroner must be contacted immediately. If the Coroner determines the remains to be Native American, the Coroner will notify the Native American Heritage Commission, which will in turn appoint a Most Likely Descendent (MLD) to act as a tribal representative. The MLD will work with the Applicant and a qualified archaeologist to determine the proper treatment of the human remains and any associated funerary objects. Construction activities will not resume until either the human remains are exhumed, or the remains are avoided via Project construction design change.

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Pittsburg, City of
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ATTACHMENT A

Figures

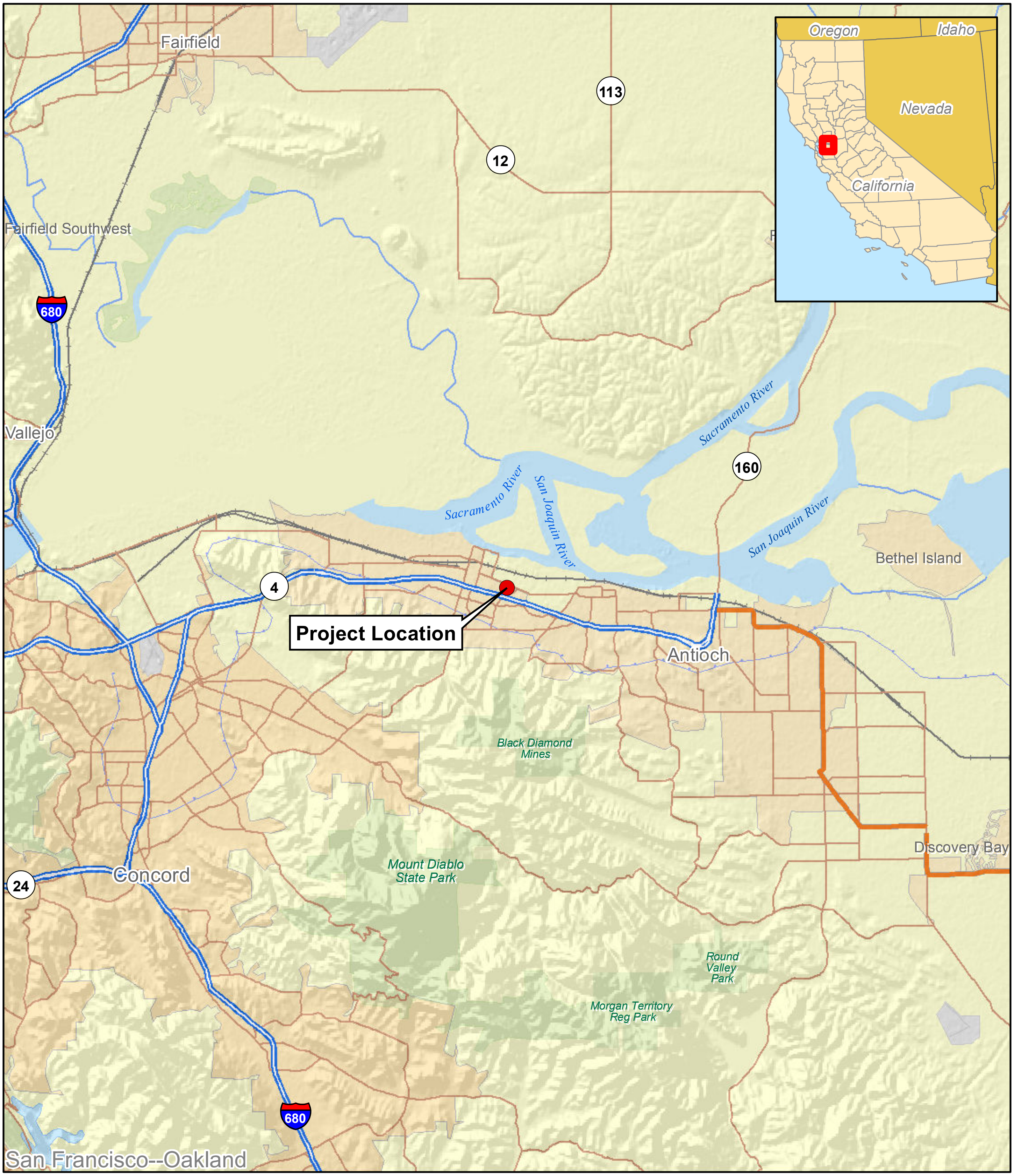

Figure 1. Project Vicinity Map.

● Pittsburg Air Separation Plant Project

Sources: *USA Base Map* [layer],*Data and Maps* [CD]. ESRI, 2006.

1:250,000

0 3 Miles

0 6 Kilometers

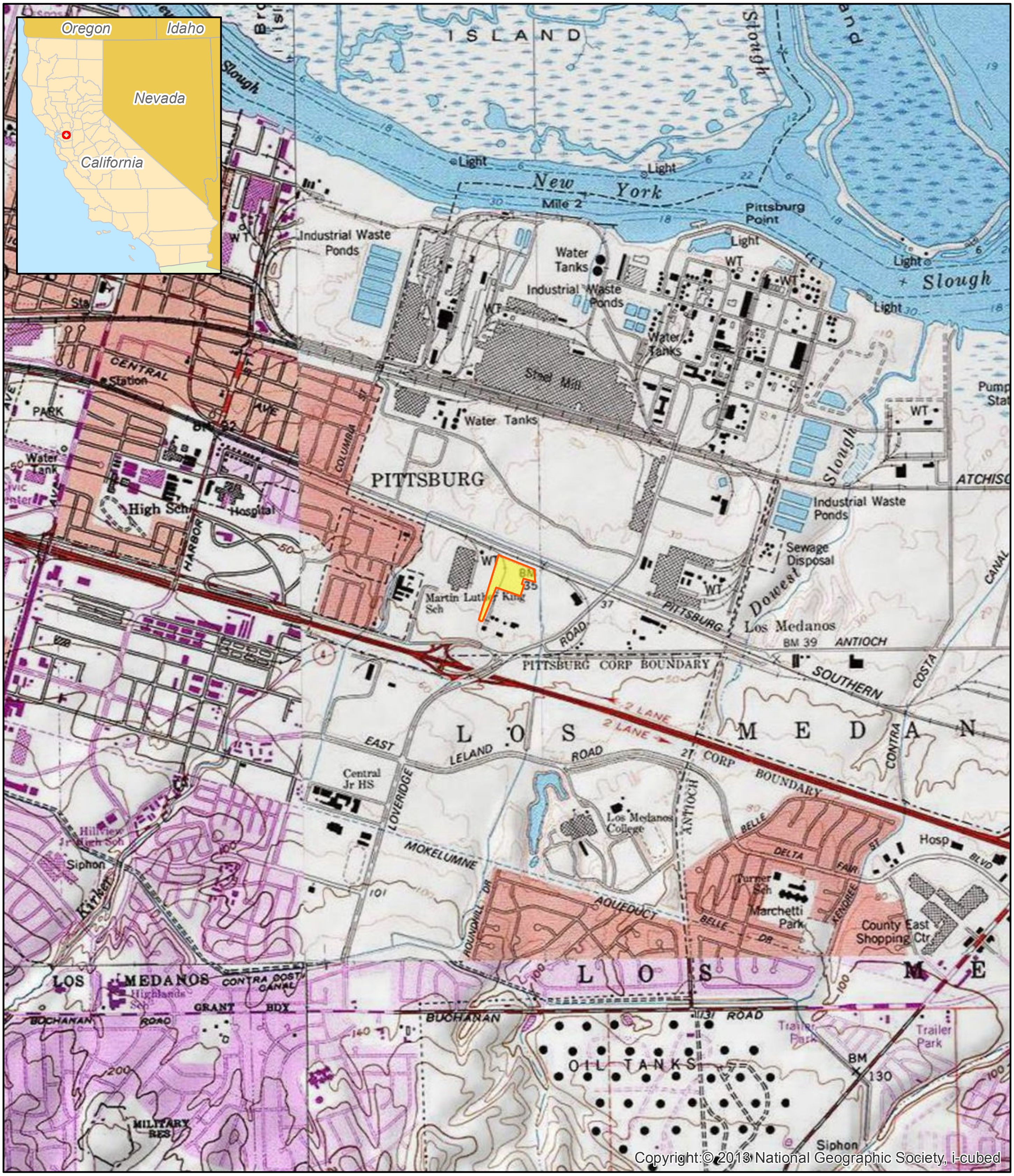

Figure 2. Project Location Map.

Pittsburg Air Separation Plant Project Area

Los Medanos Land Grant (Presumed T02N, R01E, Section 16).
Antioch North 7.5' Series Quadrangle, USGS, 1979.

1:24,000

0.5 Miles

1 Kilometers

SAS

Figure 3. Project Area Map.

Pittsburg Air Separation Plant Project Area

Total Acres: 6.62

1:2,400

0 200 Feet

0 100 Meters

Figure 4. Cultural Resources Location Map.

Pittsburg Air Separation Plant Project Area

SAS-001

1:2,400

0 200 Feet

0 100 Meters

SAS

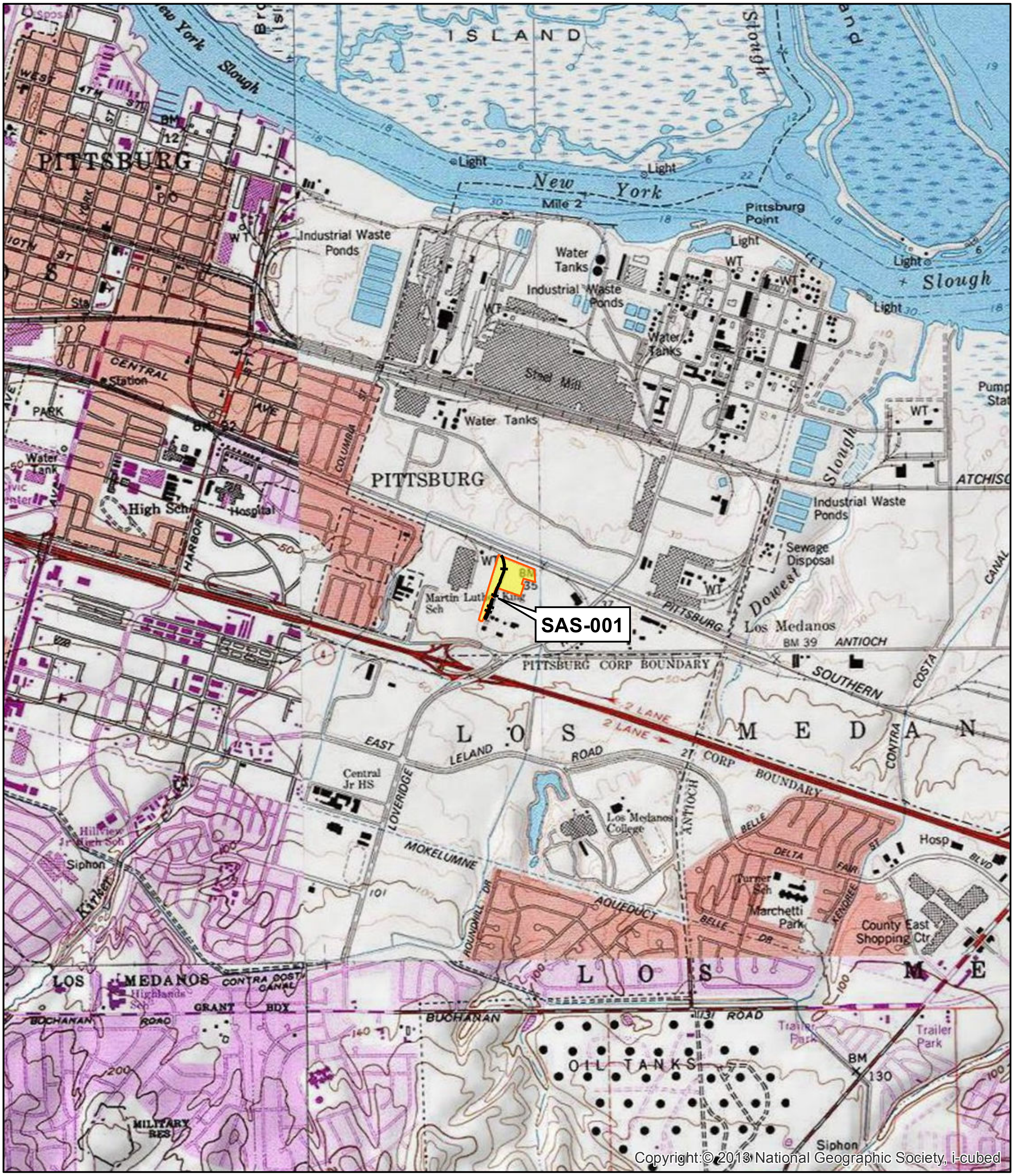

Figure 5. Cultural Resources Location Map.

Pittsburg Air Separation Plant Project Area

Linear Resource

1:24,000

0.5 Miles

1 Kilometers

SAS

ATTACHMENT B

Native American Community Outreach

NATIVE AMERICAN HERITAGE COMMISSION

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

June 27, 2023

Brian Ludwig, Ph.D.
Solano Archaeological Services

Via Email to: brian@solanoarchaeology.com

Re: Native American Tribal Consultation, Pursuant to the Assembly Bill 52 (AB 52), Amendments to the California Environmental Quality Act (CEQA) (Chapter 532, Statutes of 2014), Public Resources Code Sections 5097.94 (m), 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2 and 21084.3, Oakstone Northern California Expansion Project, Contra Costa County

To Whom It May Concern:

Pursuant to Public Resources Code section 21080.3.1 (c), attached is a consultation list of tribes that are traditionally and culturally affiliated with the geographic area of the above-listed project. Please note that the intent of the AB 52 amendments to CEQA is to avoid and/or mitigate impacts to tribal cultural resources, (Pub. Resources Code §21084.3 (a)) ("Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.")

Public Resources Code sections 21080.3.1 and 21084.3(c) require CEQA lead agencies to consult with California Native American tribes that have requested notice from such agencies of proposed projects in the geographic area that are traditionally and culturally affiliated with the tribes on projects for which a Notice of Preparation or Notice of Negative Declaration or Mitigated Negative Declaration has been filed on or after July 1, 2015. Specifically, Public Resources Code section 21080.3.1 (d) provides:

Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section.

The AB 52 amendments to CEQA law does not preclude initiating consultation with the tribes that are culturally and traditionally affiliated within your jurisdiction prior to receiving requests for notification of projects in the tribe's areas of traditional and cultural affiliation. The Native American Heritage Commission (NAHC) recommends, but does not require, early consultation as a best practice to ensure that lead agencies receive sufficient information about cultural resources in a project area to avoid damaging effects to tribal cultural resources.

The NAHC also recommends, but does not require that agencies should also include with their notification letters, information regarding any cultural resources assessment that has been completed on the area of potential effect (APE), such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

- A listing of any and all known cultural resources that have already been recorded on or adjacent to the APE, such as known archaeological sites;
- Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
- Whether the records search indicates a low, moderate, or high probability that unrecorded cultural resources are located in the APE; and
- If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

   - Any report that may contain site forms, site significance, and suggested mitigation measures.

     All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code section 6254.10.

3. The result of any Sacred Lands File (SLF) check conducted through the Native American Heritage Commission was negative.

4. Any ethnographic studies conducted for any area including all or part of the APE; and

5. Any geotechnical reports regarding all or part of the APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS are not exhaustive and a negative response to these searches does not preclude the existence of a tribal cultural resource. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the event that they do, having the information beforehand will help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our consultation list remains current.

If you have any questions, please contact me at my email address: Cody.Campagne@nahc.ca.gov.

Sincerely,

Cody Campagne

Cody Campagne
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Tribal Consultation List
Contra Costa County
6/27/2023
*Federally Recognized Tribe

Amah MutsunTribal Band of Mission San Juan Bautista
Irene Zwierlein, Chairperson
3030 Soda Bay Road
Lakeport, CA, 95453
Phone: (650) 851 - 7489
Fax: (650) 332-1526
amahmutsuntribal@gmail.com
Costanoan

****Chicken Ranch Rancheria of Me-Wuk Indians***
Lloyd Mathiesen, Chairperson
P.O. Box 1159
Jamestown, CA, 95327
Phone: (209) 984 - 9066
Fax: (209) 984-9269
lmathiesen@crtribal.com
Me-Wuk

****Guidiville Rancheria of California***
Michael Derry, Historian
PO Box 339
Talmage, CA, 95481
Phone: (707) 391 - 1665
historian@guidiville.net
Pomo

****Guidiville Rancheria of California***
Bunny Tarin, Tribal Administrator
PO Box 339
Talmage, CA, 95481
Phone: (707) 462 - 3682
admin@guidiville.net
Pomo

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

Indian Canyon Mutsun Band of Costanoan
Kanyon Sayers-Roods, MLD Contact
1615 Pearson Court
San Jose, CA, 95122
Phone: (408) 673 - 0626
kanyon@kanyonkonsulting.com
Costanoan

Muwekma Ohlone Indian Tribe of the SF Bay Area
Monica Arellano, Vice Chairwoman
20885 Redwood Road, Suite 232
Castro Valley, CA, 94546
Phone: (408) 205 - 9714
monicavarellano@gmail.com
Costanoan

Muwekma Ohlone Indian Tribe of the SF Bay Area
Charlene Nijmeh, Chairperson
20885 Redwood Road, Suite 232
Castro Valley, CA, 94546
Phone: (408) 464 - 2892
cnijmeh@muwekma.org
Costanoan

Nashville Enterprise Miwok-Maidu-Nishinam Tribe
Cosme Valdez, Chairperson
P.O. Box 580986
Elk Grove, CA, 95758-0017
Phone: (916) 429 - 8047
Fax: (916) 429-8047
valdezcome@comcast.net
Miwok

North Valley Yokuts Tribe
Katherine Perez, Chairperson
P.O. Box 717
Linden, CA, 95236
Phone: (209) 887 - 3415
canutes@verizon.net
Costanoan
Northern Valley Yokut

North Valley Yokuts Tribe
Timothy Perez,
P.O. Box 717
Linden, CA, 95236
Phone: (209) 662 - 2788
huskanam@gmail.com
Costanoan
Northern Valley Yokut

The Ohlone Indian Tribe
Andrew Galvan, Chairperson
P.O. Box 3388
Fremont, CA, 94539
Phone: (510) 882 - 0527
Fax: (510) 687-9393
chochenyo@AOL.com
Bay Miwok
Ohlone
Patwin
Plains Miwok

This list is current only as of the date of this document. 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 Resources Code and section 5097.98 of the Public Resources Code.

This list is only applicable for consultation with Native American tribes under Public Resources Code Sections 21080.3.1 for the proposed Oakstone Northern California Expansion Project, Contra Costa County.

Native American Heritage Commission
Tribal Consultation List
Contra Costa County
6/27/2023
*Federally Recognized Tribe

****Wilton Rancheria*** Steven Hutchason, THPO 9728 Kent Street Elk Grove, CA, 95624 Phone: (916) 683 - 6000 Fax: (916) 863-6015 shutchason@wiltonrancheria-nsn.gov	Miwok
****Wilton Rancheria*** Jesus Tarango, Chairperson 9728 Kent Street Elk Grove, CA, 95624 Phone: (916) 683 - 6000 Fax: (916) 683-6015 jtarango@wiltonrancheria-nsn.gov	Miwok
****Wilton Rancheria*** Dahlton Brown, Director of Administration 9728 Kent Street Elk Grove, CA, 95624 Phone: (916) 683 - 6000 dbrown@wiltonrancheria-nsn.gov	Miwok
Confederated Villages of Lisjan Nation Deja Gould, Language Program Manager 10926 Edes Ave Oakland, CA, 94603 Phone: (510) 575 - 8408 cvltribe@gmail.com	Bay Miwok Ohlone Delta Yokut
Confederated Villages of Lisjan Nation Corrina Gould, Chairperson 10926 Edes Avenue Oakland, CA, 94603 Phone: (510) 575 - 8408 cvltribe@gmail.com	Bay Miwok Ohlone Delta Yokut
Confederated Villages of Lisjan Nation Cheyenne Gould, Tribal Cultural Resource Manager 10926 Edes Ave Oakland, CA, 94603 Phone: (510) 575 - 8408 cvltribe@gmail.com	Bay Miwok Ohlone Delta Yokut

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P.O. Box 367
Elmira, CA 95625

707-718-1416 ▴ Fax 707-451-4775
www.solanoarchaeology.com

July 3rd, 2023

The Ohlone Indian Tribe
Andrew Galvan, Chairperson
P.O. Box 3388
Fremont, CA, 94539

Re: Project Oakstone Northern California Expansion Project, City of Pittsburg, Contra Costa County, California

Dear Mr. Galvan:

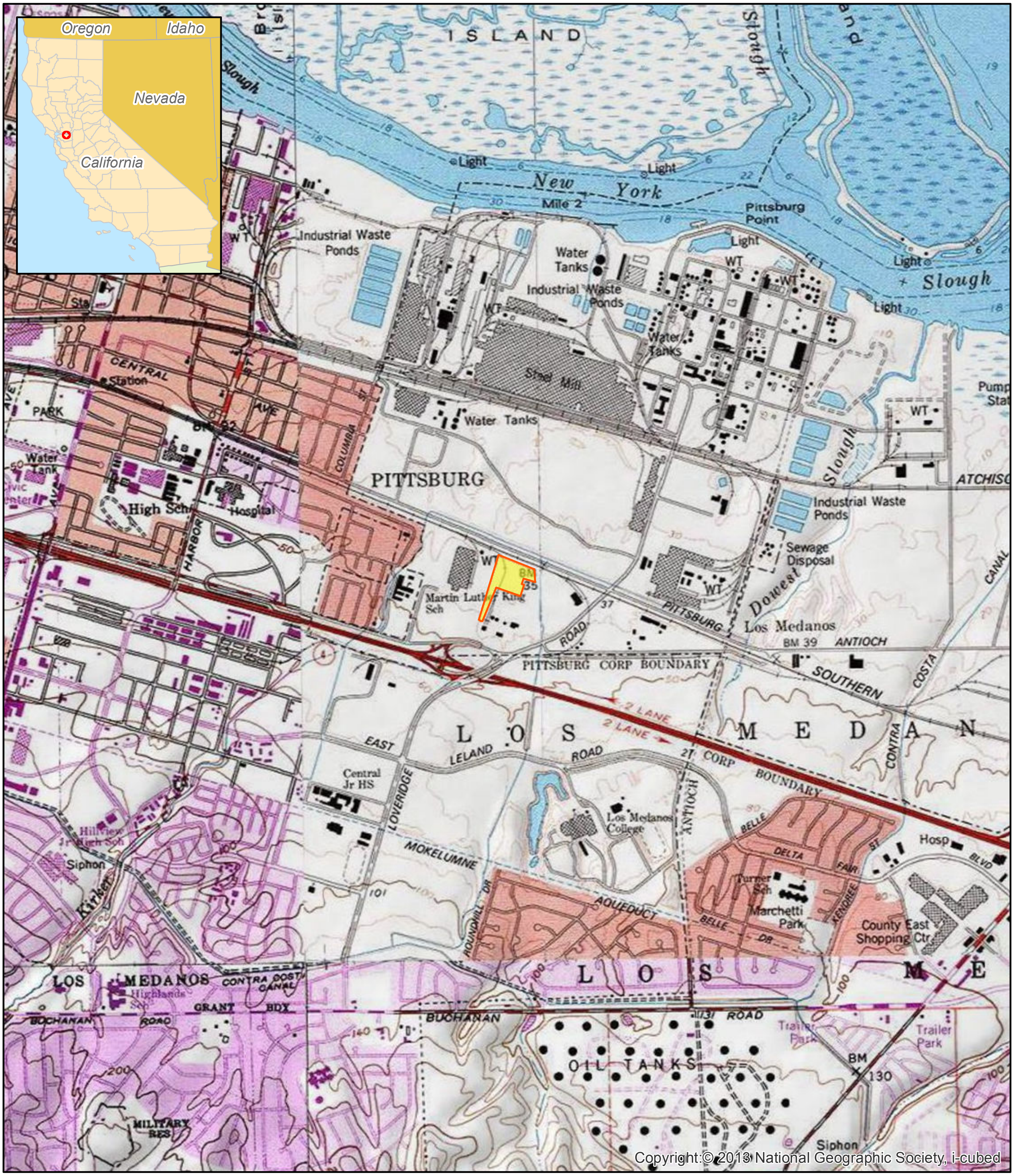
RWH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 6.6-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to build a new liquid nitrogen, oxygen, and argon plant at its existing facility. The project area is situated in Township 2 North, Range 1 East in the Los Medanos Land Grant on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

The cultural investigation will include an intensive field survey and we would like to know if you have any knowledge of cultural resources in the vicinity. For your information, the Native American Heritage Commission conducted a search of the Sacred Lands File and did not identify any previously documented culturally sensitive sites or properties within or near the APE. However, if you have any concerns with the project or know of any potentially significant properties in the area, I would appreciate hearing from you.

If you have any questions, feel free to contact me by email at brian@solanoarchaeology, or via phone at 530-417-7007.

Regards,

Brian Ludwig, Ph.D.
Principal Investigator



Project Location Map.

Oakstone Air Separation Plant Project Area

Los Medanos Land Grant (Presumed T02N, R01E, Section 16).
Antioch North 7.5' Series Quadrangle, USGS, 1979.

1:24,000

0.5 Miles

1 Kilometers

SAS

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Elmira, CA 95625

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July 3rd, 2023

Indian Canyon Mutsun Band of Costanoan
Ann Marie Sayers, Chairperson
P.O. Box 28
Hollister, CA, 95024

Re: Project Oakstone Northern California Expansion Project, City of Pittsburg, Contra Costa County, California

Dear Ms. Sayers:

RWH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 6.6-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to build a new liquid nitrogen, oxygen, and argon plant at its existing facility. The project area is situated in Township 2 North, Range 1 East in the Los Medanos Land Grant on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

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Regards,

Brian Ludwig, Ph.D.
Principal Investigator

P.O. Box 367
Elmira, CA 95625

707-718-1416 ▴ Fax 707-451-4775
www.solanoarchaeology.com

July 3rd, 2023

Guidiville Rancheria of California
Bunny Tarin, Tribal Administrator
PO Box 339
Talmage, CA, 95481

Re: Project Oakstone Northern California Expansion Project, City of Pittsburg, Contra Costa County, California

Dear Ms. Tarin:

RWH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 6.6-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to build a new liquid nitrogen, oxygen, and argon plant at its existing facility. The project area is situated in Township 2 North, Range 1 East in the Los Medanos Land Grant on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

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Regards,

Brian Ludwig, Ph.D.
Principal Investigator

P.O. Box 367
Elmira, CA 95625

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www.solanoarchaeology.com

July 3rd, 2023

Muwekma Ohlone Indian Tribe of the San Francisco Bay Area
Charlene Nijmeh Chairwoman
20885 Redwood Road, Suite 232
Castro Valley, CA, 94546

Re: Project Oakstone Northern California Expansion Project, City of Pittsburg, Contra Costa County, California

Dear Ms. Nijmeh:

RWH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 6.6-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to build a new liquid nitrogen, oxygen, and argon plant at its existing facility. The project area is situated in Township 2 North, Range 1 East in the Los Medanos Land Grant on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

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Regards,

Brian Ludwig, Ph.D.
Principal Investigator

P.O. Box 367
Elmira, CA 95625

707-718-1416 ▲ Fax 707-451-4775
www.solanoarchaeology.com

July 3rd, 2023

Confederated Villages of Lisjan Nation
Cheyenne Gould, Tribal Cultural Resource Manager
10926 Edes Ave
Oakland, CA, 94603

Re: Project Oakstone Northern California Expansion Project, City of Pittsburg, Contra Costa County, California

Dear Ms. Gould:

RWH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 6.6-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to build a new liquid nitrogen, oxygen, and argon plant at its existing facility. The project area is situated in Township 2 North, Range 1 East in the Los Medanos Land Grant on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

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Brian Ludwig, Ph.D.
Principal Investigator

P.O. Box 367
Elmira, CA 95625

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July 3rd, 2023

Confederated Villages of Lisjan Nation
Corrina Gould, Chairperson
10926 Edes Avenue
Oakland, CA, 94603

Re: Project Oakstone Northern California Expansion Project, City of Pittsburg, Contra Costa County, California

Dear Ms. Gould:

RWH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 6.6-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to build a new liquid nitrogen, oxygen, and argon plant at its existing facility. The project area is situated in Township 2 North, Range 1 East in the Los Medanos Land Grant on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

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Principal Investigator

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Elmira, CA 95625

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July 3rd, 2023

Nashville Enterprise Miwok-Maidu-Nishinam Tribe
Cosme Valdez, Chairperson
P.O. Box 580986
Elk Grove, CA, 95758-0017

Re: Project Oakstone Northern California Expansion Project, City of Pittsburg, Contra Costa County, California

Dear Mr. Valdez:

RWH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 6.6-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to build a new liquid nitrogen, oxygen, and argon plant at its existing facility. The project area is situated in Township 2 North, Range 1 East in the Los Medanos Land Grant on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

The cultural investigation will include an intensive field survey and we would like to know if you have any knowledge of cultural resources in the vicinity. For your information, the Native American Heritage Commission conducted a search of the Sacred Lands File and did not identify any previously documented culturally sensitive sites or properties within or near the APE. However, if you have any concerns with the project or know of any potentially significant properties in the area, I would appreciate hearing from you.

If you have any questions, feel free to contact me by email at brian@solanoarchaeology, or via phone at 530-417-7007.

Regards,

Brian Ludwig, Ph.D.
Principal Investigator

P.O. Box 367
Elmira, CA 95625

707-718-1416 ▲ Fax 707-451-4775
www.solanoarchaeology.com

July 3rd, 2023

Wilton Rancheria
Dahlton Brown, Director of Administration
9728 Kent Street
Elk Grove, CA, 95624

Re: Project Oakstone Northern California Expansion Project, City of Pittsburg, Contra Costa County, California

Dear Mr. Brown:

RWH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 6.6-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to build a new liquid nitrogen, oxygen, and argon plant at its existing facility. The project area is situated in Township 2 North, Range 1 East in the Los Medanos Land Grant on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

The cultural investigation will include an intensive field survey and we would like to know if you have any knowledge of cultural resources in the vicinity. For your information, the Native American Heritage Commission conducted a search of the Sacred Lands File and did not identify any previously documented culturally sensitive sites or properties within or near the APE. However, if you have any concerns with the project or know of any potentially significant properties in the area, I would appreciate hearing from you.

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Regards,

Brian Ludwig, Ph.D.
Principal Investigator

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Elmira, CA 95625

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www.solanoarchaeology.com

July 3rd, 2023

Confederated Villages of Lisjan Nation
Deja Gould, Language Program Manager
10926 Edes Ave.
Oakland, CA, 94603

Re: Project Oakstone Northern California Expansion Project, City of Pittsburg, Contra Costa County, California

Dear Ms. Gould:

RWH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 6.6-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to build a new liquid nitrogen, oxygen, and argon plant at its existing facility. The project area is situated in Township 2 North, Range 1 East in the Los Medanos Land Grant on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

The cultural investigation will include an intensive field survey and we would like to know if you have any knowledge of cultural resources in the vicinity. For your information, the Native American Heritage Commission conducted a search of the Sacred Lands File and did not identify any previously documented culturally sensitive sites or properties within or near the APE. However, if you have any concerns with the project or know of any potentially significant properties in the area, I would appreciate hearing from you.

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Regards,

Brian Ludwig, Ph.D.
Principal Investigator

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July 3rd, 2023

Amah MutsunTribal Band of Mission San Juan Bautista
Irene Zwierlein, Chairperson
3030 Soda Bay Road
Lakeport, CA, 95453

Re: Project Oakstone Northern California Expansion Project, City of Pittsburg, Contra Costa County, California

Dear Ms. Zweirlein:

RWH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 6.6-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to build a new liquid nitrogen, oxygen, and argon plant at its existing facility. The project area is situated in Township 2 North, Range 1 East in the Los Medanos Land Grant on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

The cultural investigation will include an intensive field survey and we would like to know if you have any knowledge of cultural resources in the vicinity. For your information, the Native American Heritage Commission conducted a search of the Sacred Lands File and did not identify any previously documented culturally sensitive sites or properties within or near the APE. However, if you have any concerns with the project or know of any potentially significant properties in the area, I would appreciate hearing from you.

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Regards,

Brian Ludwig, Ph.D.
Principal Investigator

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Elmira, CA 95625

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www.solanoarchaeology.com

July 3rd, 2023

Wilton Rancheria
Jesus Tarango, Chairperson
9728 Kent Street
Elk Grove, CA, 95624

Re: Project Oakstone Northern California Expansion Project, City of Pittsburg, Contra Costa County, California

Dear Mr. Tarango:

RWH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 6.6-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to build a new liquid nitrogen, oxygen, and argon plant at its existing facility. The project area is situated in Township 2 North, Range 1 East in the Los Medanos Land Grant on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

The cultural investigation will include an intensive field survey and we would like to know if you have any knowledge of cultural resources in the vicinity. For your information, the Native American Heritage Commission conducted a search of the Sacred Lands File and did not identify any previously documented culturally sensitive sites or properties within or near the APE. However, if you have any concerns with the project or know of any potentially significant properties in the area, I would appreciate hearing from you.

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Regards,

Brian Ludwig, Ph.D.
Principal Investigator

P.O. Box 367
Elmira, CA 95625

707-718-1416 ▲ Fax 707-451-4775
www.solanoarchaeology.com

July 3rd, 2023

Indian Canyon Mutsun Band of Costanoan
Kanyon Sayers-Roods
1615 Pearson Court
San Jose, CA, 95122

Re: Project Oakstone Northern California Expansion Project, City of Pittsburg, Contra Costa County, California

Dear Ms. Sayers-Roods:

RWH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 6.6-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to build a new liquid nitrogen, oxygen, and argon plant at its existing facility. The project area is situated in Township 2 North, Range 1 East in the Los Medanos Land Grant on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

The cultural investigation will include an intensive field survey and we would like to know if you have any knowledge of cultural resources in the vicinity. For your information, the Native American Heritage Commission conducted a search of the Sacred Lands File and did not identify any previously documented culturally sensitive sites or properties within or near the APE. However, if you have any concerns with the project or know of any potentially significant properties in the area, I would appreciate hearing from you.

If you have any questions, feel free to contact me by email at brian@solanoarchaeology, or via phone at 530-417-7007.

Regards,

Brian Ludwig, Ph.D.
Principal Investigator

P.O. Box 367
Elmira, CA 95625

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www.solanoarchaeology.com

July 3rd, 2023

North Valley Yokuts Tribe
Katherine Perez, Chairperson
P.O. Box 717
Linden, CA, 95236

Re: Project Oakstone Northern California Expansion Project, City of Pittsburg, Contra Costa County, California

Dear Ms. Perez:

RWH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 6.6-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to build a new liquid nitrogen, oxygen, and argon plant at its existing facility. The project area is situated in Township 2 North, Range 1 East in the Los Medanos Land Grant on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

The cultural investigation will include an intensive field survey and we would like to know if you have any knowledge of cultural resources in the vicinity. For your information, the Native American Heritage Commission conducted a search of the Sacred Lands File and did not identify any previously documented culturally sensitive sites or properties within or near the APE. However, if you have any concerns with the project or know of any potentially significant properties in the area, I would appreciate hearing from you.

If you have any questions, feel free to contact me by email at brian@solanoarchaeology, or via phone at 530-417-7007.

Regards,

Brian Ludwig, Ph.D.
Principal Investigator

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Elmira, CA 95625

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www.solanoarchaeology.com

July 3rd, 2023

Chicken Ranch Rancheria of Me-Wuk Indians
Lloyd Mathiesen, Chairperson
P.O. Box 1159
Jamestown, CA, 95327

Re: Project Oakstone Northern California Expansion Project, City of Pittsburg, Contra Costa County, California

Dear Mr. Mathiesen:

RWH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 6.6-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to build a new liquid nitrogen, oxygen, and argon plant at its existing facility. The project area is situated in Township 2 North, Range 1 East in the Los Medanos Land Grant on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

The cultural investigation will include an intensive field survey and we would like to know if you have any knowledge of cultural resources in the vicinity. For your information, the Native American Heritage Commission conducted a search of the Sacred Lands File and did not identify any previously documented culturally sensitive sites or properties within or near the APE. However, if you have any concerns with the project or know of any potentially significant properties in the area, I would appreciate hearing from you.

If you have any questions, feel free to contact me by email at brian@solanoarchaeology, or via phone at 530-417-7007.

Regards,

Brian Ludwig, Ph.D.
Principal Investigator

P.O. Box 367
Elmira, CA 95625

707-718-1416 ▴ Fax 707-451-4775
www.solanoarchaeology.com

July 3rd, 2023

Guidiville Rancheria of California
Michael Derry, Historian
PO Box 339
Talmage, CA, 95481

Re: Project Oakstone Northern California Expansion Project, City of Pittsburg, Contra Costa County, California

Dear Mr. Derry:

RWH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 6.6-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to build a new liquid nitrogen, oxygen, and argon plant at its existing facility. The project area is situated in Township 2 North, Range 1 East in the Los Medanos Land Grant on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

The cultural investigation will include an intensive field survey and we would like to know if you have any knowledge of cultural resources in the vicinity. For your information, the Native American Heritage Commission conducted a search of the Sacred Lands File and did not identify any previously documented culturally sensitive sites or properties within or near the APE. However, if you have any concerns with the project or know of any potentially significant properties in the area, I would appreciate hearing from you.

If you have any questions, feel free to contact me by email at brian@solanoarchaeology, or via phone at 530-417-7007.

Regards,

Brian Ludwig, Ph.D.
Principal Investigator

P.O. Box 367
Elmira, CA 95625

707-718-1416 ▴ Fax 707-451-4775
www.solanoarchaeology.com

July 3rd, 2023

Muwekma Ohlone Indian Tribe of the San Francisco Bay Area
Monica Arellano, Vice Chairwoman
20885 Redwood Road, Suite 232
Castro Valley, CA, 94546

Re: Project Oakstone Northern California Expansion Project, City of Pittsburg, Contra Costa County, California

Dear Ms. Arellano:

RWH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 6.6-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to build a new liquid nitrogen, oxygen, and argon plant at its existing facility. The project area is situated in Township 2 North, Range 1 East in the Los Medanos Land Grant on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

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If you have any questions, feel free to contact me by email at brian@solanoarchaeology, or via phone at 530-417-7007.

Regards,

Brian Ludwig, Ph.D.
Principal Investigator

P.O. Box 367
Elmira, CA 95625

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www.solanoarchaeology.com

July 3rd, 2023

Wilton Rancheria
Steven Hutchason
9728 Kent Street
Elk Grove, CA, 95624

Re: Project Oakstone Northern California Expansion Project, City of Pittsburg, Contra Costa County, California

Dear Mr. Hutchason:

RWH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 6.6-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to build a new liquid nitrogen, oxygen, and argon plant at its existing facility. The project area is situated in Township 2 North, Range 1 East in the Los Medanos Land Grant on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

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If you have any questions, feel free to contact me by email at brian@solanoarchaeology, or via phone at 530-417-7007.

Regards,

Brian Ludwig, Ph.D.
Principal Investigator

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Elmira, CA 95625

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July 3rd, 2023

North Valley Yokuts Tribe
Timothy Perez
P.O. Box 717
Linden, CA, 95236

Re: Project Oakstone Northern California Expansion Project, City of Pittsburg, Contra Costa County, California

Dear Mr. Perez:

RWH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 6.6-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to build a new liquid nitrogen, oxygen, and argon plant at its existing facility. The project area is situated in Township 2 North, Range 1 East in the Los Medanos Land Grant on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

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If you have any questions, feel free to contact me by email at brian@solanoarchaeology, or via phone at 530-417-7007.

Regards,

Brian Ludwig, Ph.D.
Principal Investigator

ATTACHMENT C

Records Search Documentation

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM

ALAMEDA COLUSA CONTRA COSTA DEL NORTE HUMBOLDT LAKE MARIN MENDOCINO MONTEREY NAPA SAN BENITO SAN FRANCISCO SAN MATEO SANTA CLARA SANTA CRUZ SOLANO SONOMA YOLO

Northwest Information Center
Sonoma State University
1400 Valley House Drive, Suite 210
Rohnert Park, California 94928-3609
Tel: 707.588.8455
nwic@sonoma.edu
https://nwic.sonoma.edu

6/7/2023 NWIC File No.: 22-1865

Brian Ludwig
Solano Archaeological Services
P.O. Box 367
Elmira, CA 95628

Re: Pittsburgh Separation Plant

The Northwest Information Center received your record search request for the project area referenced above, located on the Antioch North USGS 7.5' quad(s). The following reflects the results of the records search for the project area and a 0.25 mi. radius:

Resources within project area:	None listed
Resources within 0.25 mi. radius:	[17] Please see attached list, page 3
Reports within project area:	S-10040, 10268, 17993, 31375, 46909
Reports within 0.25 mi. radius:	S-18352, 20405, 22464, 22929, 24322, 20579, 35244, 44229

Resource Database Printout (list):		☐ enclosed	☒ not requested	☐ nothing listed
Resource Database Printout (details):		☒ enclosed	☐ not requested	☐ nothing listed
Resource Digital Database Records:		☐ enclosed	☒ not requested	☐ nothing listed
Report Database Printout (list):		☒ enclosed	☐ not requested	☐ nothing listed
Report Database Printout (details):		☐ enclosed	☒ not requested	☐ nothing listed
Report Digital Database Records:		☐ enclosed	☒ not requested	☐ nothing listed
Resource Record Copies:	[within]	☐ enclosed	☐ not requested	☒ nothing listed
Report Copies:		☐ enclosed	☒ not requested	☐ nothing listed
OHP Built Environment Resources Directory:		☒ enclosed	☐ not requested	☐ nothing listed
Archaeological Determinations of Eligibility:		☒ enclosed	☐ not requested	☐ nothing listed
CA Inventory of Historic Resources (1976):		☐ enclosed	☐ not requested	☒ nothing listed
GLO and/or Rancho Plat Maps:		☐ enclosed	☒ not requested	☐ nothing listed
Historical Maps:		☐ enclosed	☒ not requested	☐ nothing listed

Local Inventories:	☐ enclosed ☒ not requested ☐ nothing listed
Caltrans Bridge Survey:	☐ enclosed ☒ not requested ☐ nothing listed
Ethnographic Information:	☐ enclosed ☒ not requested ☐ nothing listed
Historical Literature:	☐ enclosed ☒ not requested ☐ nothing listed
Shipwreck Inventory:	☐ enclosed ☒ not requested ☐ nothing listed

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Requests made after initial invoicing will result in the preparation of a separate invoice.

Thank you for using the California Historical Resources Information System (CHRIS).

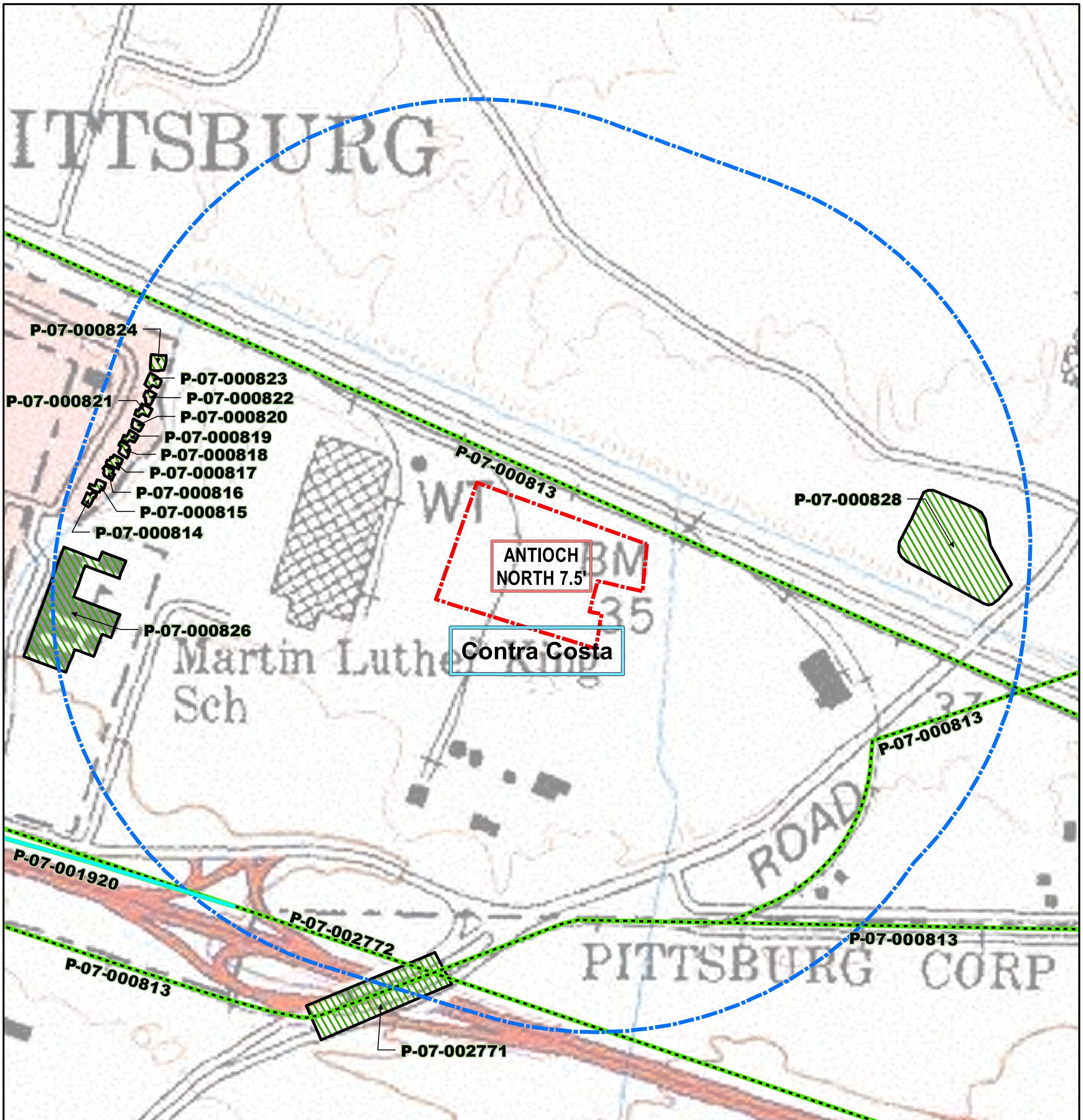
Sincerely,

Annette Neal

Researcher

PrimCo	PrimNo
P-07-	000813
P-07-	000814
P-07-	000815
P-07-	000816
P-07-	000817
P-07-	000818
P-07-	000819
P-07-	000820
P-07-	000821
P-07-	000822
P-07-	000823
P-07-	000824
P-07-	000826
P-07-	000828
P-07-	001920
P-07-	002771
P-07-	002772

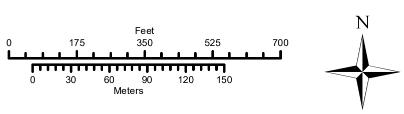
Pittsburgh Separation Plant
Results Map #1 - Resources



Northwest Information Center

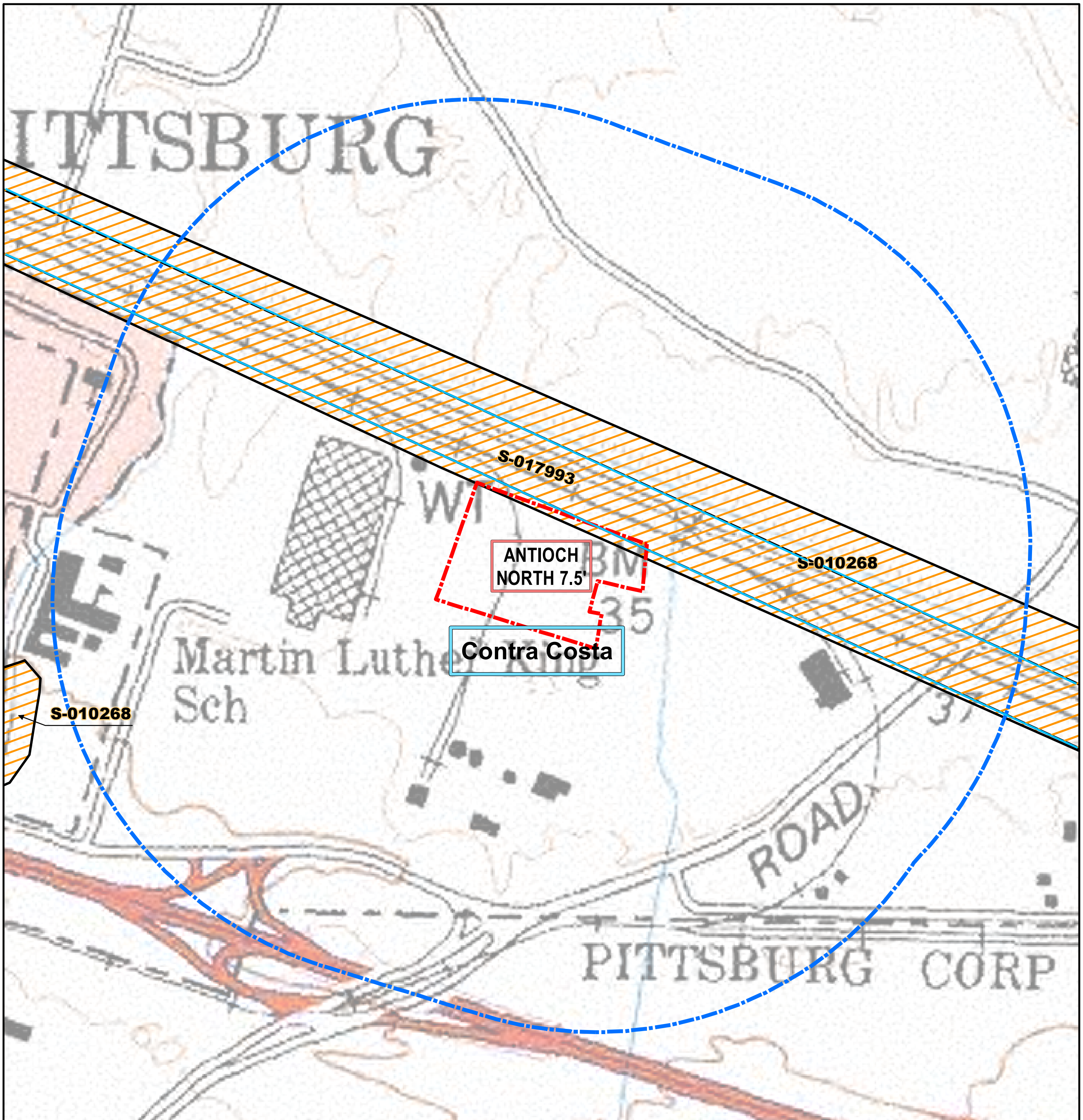
File # 22-1864 7 June 2023 A.Neal

May depict confidential cultural resource locations. Do not distribute.



- 22-1864_0.25 mi. Buffer
- 22-1864_Pittsburg Separation Plant
- Resources (lines)
- Resources (polygons)
- Reports (polygons)
- Reports approx loc
- Quad outlines
- County outlines

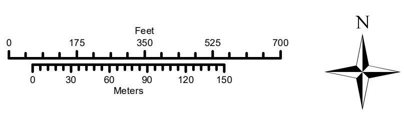
Pittsburgh Separation Plant
Results Map #2 - Reports



Northwest Information Center

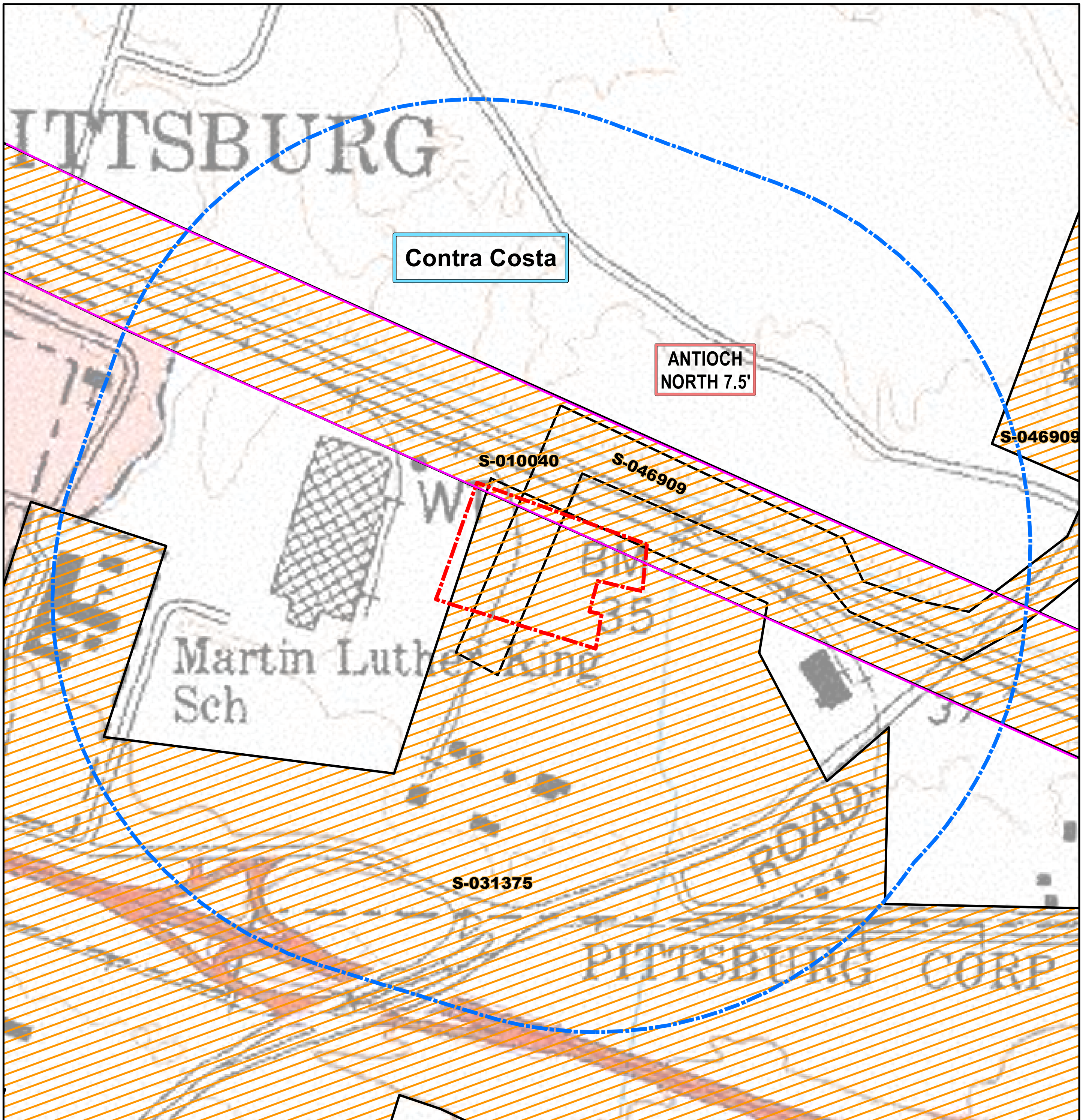
File # 22-1864 7 June 2023 A.Neal

May depict confidential cultural resource locations.
Do not distribute.



- 22-1864_0.25 mi. Buffer
- 22-1864_Pittsburg Separation Plant
- Resources (lines)
- Resources (polygons)
- Reports (polygons)
- Reports approx loc
- Quad outlines
- County outlines

Pittsburgh Separation Plant
Results Map #3 - Reports



Northwest Information Center

File # 22-1864 7 June 2023 A.Neal

May depict confidential cultural resource locations. Do not distribute.

Feet: 0 175 350 525 700
Meters: 0 30 60 90 120 150

N

- 22-1864_0.25 mi. Buffer
- 22-1864_Pittsburg Separation Plant
- Resources (lines)
- Resources (polygons)
- Reports (polygons)
- Reports approx loc
- Quad outlines
- County outlines

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
S-018352		1976		East/Central Contra Costa County Wastewater Management Plan, California: Cultural Resources Survey	Arthur D. Little, Inc.	07-000080, 07-000813
S-018352a		1976	Adam Cvijanovic and Larry Aull	Assessment of Historical and Architectural Resources	American Institute of Architects	
S-018352b		1976	Colin I. Busby	Assessment of Archaeological Resources: East/Central Contra Costa County Wastewater Management Plan	University of California, Berkeley, Department of Anthropology	
S-020405	Caltrans - EA 228260; Voided - S-23155	1996	Laurence H. Shoup and Ward Hill	Historic Architectural Survey Report, Route 4 East Project, Contra Costa County, California (04-CC-4, PM R14.6-24.0, KP 23.5-38.6, EA 228260)	Archaeological/Historical Consultants	07-001920, 07-001921, 07-001922, 07-004947
S-020405a		1996	Laura June Melton	Archaeological Survey Report, Route 4 East Project, Contra Costa County, California	Woodward-Clyde Consultants	
S-022464		1999		Cultural Resource Inventory Report for the Williams Communications, Inc. Fiber Optic Cable System Installation Project, Pittsburg to Sacramento, California	Jones & Stokes Associates, Inc.	07-000813, 48-000199, 48-000549, 48-000565, 57-000194, 57-000400
S-022929	Voided - S-22930	2000	Sara M. Atchley	Positive Archaeological Survey and Historic Resources Evaluation Report for the State Route 4/Loveridge Road Flood Relief Project - Kirker Creek, City of Pittsburg, Contra Costa County	Jones & Stokes	07-000806, 07-000813, 07-000814, 07-000815, 07-000816, 07-000817, 07-000818, 07-000819, 07-000820, 07-000821, 07-000822, 07-000823, 07-000824, 07-000825, 07-000826, 07-000827, 07-000828, 07-000829, 07-000830, 07-000831, 07-000832, 07-000833, 07-000834, 07-000835, 07-000836
S-022929a		2000	Aimee Dour-Smith	State Route 4 Flood Relief Project on Kirker Creek- Supplement to Archaeological Survey Report	Jones & Stokes	
S-022929b		2000	Janice C. Calpo	Historic Architectural Survey Report for the State Route 4/Loveridge Road Flood Relief Project- Kirker Creek, City of Pittsburg, Contra Costa County	Jones & Stokes	
S-024322	Voided - S-20465; Voided - S-24323	1998	Sally Morgan and Bruce Bachand	Pittsburg District Energy Facility, Cultural Resources Technical Report (Appendix K)	Woodward-Clyde Consultants	07-000761
S-024322a		1998	Sally Morgan and Bruce Bachand	Pittsburg District Energy Facility, Cultural Resources Technical Report (Supplement to Appendix K)	Woodward-Clyde Consultants	

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
S-024322b		2000		Pittsburg District Energy Facility Cultural Resources, Technical Report Addendum 1, Appendix K (Additional Construction Laydown Area)	URS	
S-030579	Other - CEC Project 98-AFC-3C	2004	Colin I. Busby	Cultural Resources Report, Delta Energy Center Site (DEC) and Associated Linears, Cities of Pittsburg and Antioch, Contra Costa County, California, California Energy Commission (CEC), Project 98-AFC-3C	Basin Research Associates, Inc.	07-002563
S-035244	Voided - S-034865; Voided - S-034866; Voided - S-034867	2008	Suzanne Baker and Laurence H. Shoup	eBart Project EIR, Archaeological Survey Report: eBart Project, Contra Costa County, California	Archaeological/Historical Consultants	07-000813, 07-002695, 07-002779, 07-002877, 07-002878, 07-002879, 07-002880, 07-002884, 07-002885, 07-002886, 07-002887, 07-002888, 07-002889, 07-002890, 07-002891, 07-002892, 07-002893, 07-002894, 07-002895, 07-002896, 07-002897, 07-002914, 07-002923
S-035244a		2007	Laurence H. Shoup	eBart Transit Corridor EIR/EIS, Historic Resources Evaluation Report: San Pablo & Tulare Railroad/Central Pacific Railroad (Southern Pacific Railroad/Union Pacific Railroad), eBart Project, Contra Costa County, California	Archaeological/Historical Consultants	
S-035244b		2007	Ward Hill, Laurence H. Shoup, Marjorie Dobkin, and Suzanne Baker	DRAFT #2, eBART Transit Corridor EIR/EIS, Historic Resources Evaluation Report: Historic Architecture of the eBART Project, Contra Costa County, California	Archaeological/Historical Consultants	
S-035244c		2007	Suzanne Baker and Laurence H. Shoup	eBART Transit Corridor EIR/EIS, Positive Archaeological Survey Report: eBART Project, Contra Costa County, California (Union Pacific Mococo Line Alternative)	Archaeological/Historical Consultants	
S-044229	Agency Nbr - Delta Diablo Sanitation District Project 14116	2013	Allen G. Pastron and Michelle Touton Staley	Phase I Cultural Resources Evaluation for the Pittsburg Forcemain Improvements Project, Contra Costa County, California	Archeo-Tec	

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
S-010040	Voided - S-13256	1988	Allan Bramlette, Mary Praetzellis, Adrian Praetzellis, and David A. Fredrickson	Archaeological and Historical Resources Within the Los Vaqueros/Kellogg Study Area, Contra Costa and Alameda Counties, California	Anthropological Studies Center, Sonoma State University	01-000218, 07-000090, 07-000212, 07-000219, 07-000227, 07-000249, 07-000314, 07-000315, 07-000317, 07-000324, 07-000325, 07-000326, 07-000327, 07-000328, 07-000329, 07-000330, 07-000331, 07-000332, 07-000333, 07-000334, 07-000335, 07-000336, 07-000337, 07-000338, 07-000339, 07-000385, 07-000386, 07-000387, 07-000388, 07-000389, 07-000390, 07-000391, 07-000392, 07-000393, 07-000394, 07-000395, 07-000396, 07-000397, 07-002914
S-010040a		1991	Allan G. Bramlette, Mary Praetzellis, Adrian Praetzellis, Katherine M. Dowdall, Patrick Brunmeier, and David A. Fredrickson	Archaeological Resources Inventory for Los Vaqueros Water Conveyance Alignments, Contra Costa County, California	Anthropological Studies Center, Sonoma State University	
S-010268		1988	David Chavez and Sally B. Woodbridge	Cultural Resources Evaluations for the Pittsburgh-Antioch Alternatives Analysis, Contra Costa County, California	David Chavez & Associates	07-000813
S-017993		1995	Brian Hatoff, Barb Voss, Sharon Waechter, Stephen Wee, and Vance Bente	Cultural Resources Inventory Report for the Proposed Mojave Northward Expansion Project	Woodward-Clyde Consultants	01-000231, 01-001775, 01-001776, 01-001783, 01-002190, 01-010620, 01-010629, 01-011603, 07-000091, 07-000402, 07-000438, 07-000487, 07-000488, 07-000489, 07-000490, 07-000499, 07-000500, 07-000501, 07-000502, 07-000504, 07-000806, 07-000813, 07-002402, 07-002695, 35-000334, 38-000007, 41-000009, 41-000165, 41-000169, 41-000172, 41-000310, 41-000311, 41-000410, 41-000411, 41-000412, 41-000413, 41-000414, 41-000415, 41-000416, 41-000417, 41-000418, 41-000419, 41-000420, 41-000421, 41-000422, 41-000423, 41-000424, 41-000425, 41-000456, 41-000632, 41-000808, 43-000623, 43-000649, 43-000650, 43-000903, 43-000928, 48-000179, 48-000180, 48-000207, 48-000208, 48-000549, 48-000955

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
S-017993a		1995		Proposed Mojave Northward Expansion Project: Appendix A - Native American Consultation	Woodward-Clyde Consultants	
S-017993b		1995		Proposed Mojave Northward Expansion Project: Appendix B - Looping Segments - Class 1	Woodward-Clyde Consultants	
S-017993c		1995		Proposed Mojave Northward Expansion Project: Appendix C -Monitoring and Emergency Discovery Plan	Woodward-Clyde Consultants	
S-017993d		1995		Proposed Mojave Northward Expansion Project: Appendix D - General Construction Information	Woodward-Clyde Consultants	
S-017993e		1995		Proposed Mojave Northward Expansion Project: Appendix E - Archaeological Site Records	Woodward-Clyde Consultants	
S-017993f		1995		Proposed Mojave Northward Expansion Project: Appendix F - Historic Features Evaluation Forms	Woodward-Clyde Consultants	
S-017993g		1995		Proposed Mojave Northward Expansion Project: Appendix G - Railroad Crossing Evaluation Forms	Woodward-Clyde Consultants	
S-017993h		1995		Proposed Mojave Northward Expansion Project: Appendix H - Crossing Diagrams and Plan View Maps	Woodward Clyde Consultants	
S-017993I		1995		Proposed Mojave Northward Expansion Project: Appendix I - Railroad Depot NRHP Nomination Forms and Related Records	Woodward-Clyde Consultants	
S-017993j		1995		Proposed Mojave Northward Expansion Project: Appendix J - Looping Segment and Compressor Station Site Records	Woodward-Clyde Consultants	
S-017993k		1995		Proposed Mojave Northward Expansion Project: Appendix K - Historic Site Records / Isolate Forms	Woodward-Clyde Consultants	
S-017993l		1995		Proposed Mojave Northward Expansion Project: Appendix L - Photodocumentation	Woodward-Clyde Consultants	
S-017993m		1995		Proposed Mojave Northward Expansion Project: Appendix M - Curricula Vitae of Key Preparers	Woodward-Clyde Consultants	

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
S-031375	Caltrans - EA 04275-228500	2004	M. Kate Lewis	State Route 4 (East) Widening Project: Loveridge Road to State Route 160, 04-CC-4-KP 37.8/R47.6 (PM 23.5/R29.6), EA 04275-228500, Contra Costa County	Parsons; JRP Historical Consulting Services; Far Western Anthropological Research Group, Inc.	07-000813, 07-002499, 07-002762, 07-002763, 07-002764, 07-002765, 07-002766, 07-002767, 07-002768, 07-002770, 07-002771, 07-002772, 07-002773, 07-002774, 07-002775, 07-002776, 07-002777, 07-002778, 07-002779, 07-002780, 07-002781, 07-002782, 07-002783, 07-002784, 07-002785, 07-002786, 07-002787, 07-002788, 07-002789, 07-002790, 07-002791, 07-002792, 07-002793, 07-002794, 07-002795, 07-002796, 07-002797, 07-002798, 07-002799, 07-002800, 07-002801, 07-002802, 07-002803, 07-002804, 07-002805, 07-002806, 07-002807, 07-002808, 07-002809, 07-002810, 07-002811, 07-002812, 07-002813, 07-002814, 07-002815, 07-002816, 07-002817, 07-002818, 07-002819, 07-002820, 07-002821, 07-002822, 07-002823, 07-002824, 07-002825, 07-002826, 07-002827, 07-002828, 07-002829, 07-002830, 07-002831, 07-002832, 07-002833, 07-002834, 07-002835, 07-002836, 07-002837, 07-002838, 07-002839, 07-002840, 07-002841, 07-002842, 07-002843, 07-002844, 07-002845, 07-002846, 07-002847, 07-002848, 07-002849, 07-002850, 07-002851, 07-002853, 07-002876, 07-002882, 07-002883
S-031375a		2004	Kelly R. Heidecker	Archaeological Survey Report, State Route 4 (East) Widening Project: Loveridge Road to State Route 160, 04-CC-4-KP 37.8/R47.6 (PM 23.5/R29.6), EA 04275-228500, Contra Costa County	California Department of Transportation, District 4	
S-031375b		2004	Craig Young and Jeffrey S. Rosenthal	Geoarchaeological Assessment along the State Route 4 Widening Project	Far Western	

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
S-031375c		2004	Meta Bunse	Historic Resources Evaluation Report (HRER), State Route 4 (East) Widening Project: Loveridge Road to State Route 160, 04-CC-4-KP 37.8/R47.6 (PM 23.5/R29.6), EA 04275-228500, Contra Costa County. Volume 2 of 2	JRP Historical Consulting Services	
S-046909		2015	Aisha Rahimi-Fike	Delta Diablo Recycled Water System Expansion Project, Historical Resources Inventory and Evaluation Report, Contra Costa County, California	ICF International	07-000806, 07-000889, 07-004702, 07-004703, 07-004704, 07-004705, 07-004706
S-046909a		2015		Delta Diablo Recycled Water System Expansion Project, Archaeological Inventory Report, Contra Costa County, California	ICF International	

Resource Detail: P-07-000813

Identifying information

Primary No.: P-07-000813

Trinomial: CA-CCO-000733H

Name: Southern Pacific Railroad

Other IDs:

Type	*Name*
Other	C-Antioch South-1, C-Antioch North-1, C-Antioch North-2
Resource Name	Southern Pacific Railroad
Other	Union Pacific Railroad
Other	Central Pacific Railroad
Voided	P-07-002568
Other	San Pablo & Tulare Railroad
Other	SPN-3
Other	Central, Southern, Union Pacific RR
Other	SPN-1
Other	Old Southern Pacific Railroad Route Segment
Other	San Pablo & Tulare Railroad
Other	GANDA-509-01H
Other	Abandoned Railroad Spurs & Warehouse Complex
Voided	P-07-000503
Other	San Pablo- Tulare Railroad Brentwood Segment
Other	Map Ref #A-09

Cross-refs:
Subsumes 07-000503
Subsumes 07-000505
Subsumes 07-002553
Subsumes 07-002568
Subsumes 07-002769
See also 07-000196
See also 07-000487
See also 07-000499
See also 07-000500
Physically overlaps or intersects 07-000487
Physically overlaps or intersects 07-002499
Physically overlaps or intersects 07-004698
Extends into another county as 01-001783
Extends into another county as 35-000334
Extends into another county as 41-001877
Extends into another county as 43-000928
Extends into another county as 44-000377
Extends into another county as 48-000549
Extends into another county as 49-001510

Attributes

Resource type: Building, Structure

Age: Historic

Information base: Survey, Analysis, Other

Attribute codes: AH07 (Roads/trails/railroad grades); HP08 (Industrial building); HP11 (Engineering structure) - railroad grade; HP19 (Bridge) - bridges/trestles

Disclosure: Unrestricted

Collections: No

Accession no(s):

Facility:

General notes

This resource's recorded segments extend outside the NWIC service area (into San Joaquin County)

Recording events

Date	*Recorder(s)*	*Affiliation*	*Notes*
10/22/1999	S. Atchley, C. Roark	Jones & Stokes Associates	supplement for P-07-000813

b	4/15/1999	Barry Scott	Jones & Stokes Associates	original record for P-07-002568
f	11/1/2006	Suzanne Baker	Archaeological/Historical Consultants	supplement for P-07-000813
a	10/22/1999	S. Atchley, G. Roark	Jones & Stokes Associates	original record for P-07-000806
	12/15/2004	Josh Smallwood	CRM Tech	supplement for P-07-000806
	1/1/1995	Brian Hatoff	Woodward Clyde	original record for P-07-000813
	1/1/1995	Hatoff, Voss, Waechter, Wee, Bente	Woodward Clyde	
c	2/4/2002	Bryan Larson, Meta Bunse	JRP Historical Consulting Services	
g	12/9/2009	Richard H. Norwood, Allen Beck, Doug Tilto	HDR | DTA	
j	5/5/2009	T. Martin, K. Frank	Garcia and Associates	GANDA-509-01H
k	9/26/2011	Scott Billat	EarthTouch, Inc.	
l	9/18/2008	Ian Alexander, Juan Cervantes	Holman & Associates	
d	10/4/2011	Tracy Bakic, Cindy Baker	PAR Environmental Services	
m	11/5/2014	Ric Windmiller	[none}	says 1 of 2 but ony pg 1 submitted
n	5/5/1994	Hatoff, Voss, Waetcher, Wee, Bente	Woodward-Clyde Consultants	Railroad Spur

Associated reports

Report No.	*Year*	*Title*	*Affiliation*
S-010268	1988	Cultural Resources Evaluations for the Pittsburgh-Antioch Alternatives Analysis, Contra Costa County, California	David Chavez & Associates
S-017993	1995	Cultural Resources Inventory Report for the Proposed Mojave Northward Expansion Project	Woodward-Clyde Consultants
S-018352	1976	East/Central Contra Costa County Wastewater Management Plan, California: Cultural Resources Survey	Arthur D. Little, Inc.
S-022464	1999	Cultural Resource Inventory Report for the Williams Communications, Inc. Fiber Optic Cable System Installation Project, Pittsburg to Sacramento, California	Jones & Stokes Associates, Inc.
S-022812	1997	Contra Costa County Water Multipurpose Pipeline Project, Environmental Documentation Study, Cultural Resources Review (letter report)	Basin Research Associates
S-022929	2000	Positive Archaeological Survey and Historic Resources Evaluation Report for the State Route 4/Loveridge Road Flood Relief Project - Kirker Creek, City of Pittsburg, Contra Costa County	Jones & Stokes
S-030387	2005	Historical Resources Compliance Report, Burlington Northern Santa Fe Railway Double Track Project (Segment 2), Oakley (MP 1146.1) to Port Chicago (MP 1164.4), In and Near the Cities of Oakley, Antioch, and Pittsburg, and the Port Chicago Naval Weapons Station, Contra Costa County, California	CRM TECH
S-031375	2004	State Route 4 (East) Widening Project: Loveridge Road to State Route 160, 04-CC-4-KP 37.8/R47.6 (PM 23.5/R29.6), EA 04275-228500, Contra Costa County	Parsons; JRP Historical Consulting Services; Far Western Anthropological Research Group, Inc.
S-031961	2006	Archaeological Survey and Cultural Resources Assessment for the Balfour Center Project, Brentwood, Contra Costa County, California (letter report)	William Self Associates, Inc.

Resource Detail: P-07-000813

S-033643	2006	Historic Property Survey Report, Byron Highway Shoulder Improvement Project, Contra Costa County, California, EA 946100, STP-5928 (071)	William Self Associates
S-034865		VOIDED S# - additional citation of S-035244	
S-034866		VOIDED S# - additonal citation of S-035244	
S-035244	2008	eBart Project EIR, Archaeological Survey Report: eBart Project, Contra Costa County, California	Archaeological/Historical Consultants
S-037839	2010	Archaeological Survey and Cultural Resources Assessment of the SR-4 Bypass SR-4/160 Connectors, Contra Costa County, California (letter report)	William Self Associates
S-037849	2011	Cultural Resource Investigations for Sprint/Nextel SF74XC985-A, 1931 Minnesota Avenue, Brentwood, Contra Costa County, California	Archaeological Resources Technology
S-040338	2012	Historic Property Survey Report, Hercules Intermodal Transit Center (ITC), San Francisco Bay Trail portion, TGR2DGL-5117(011)	Far Western Anthropological Research Group, Inc
S-040530	2013	New Tower Submission Packet, Parr Blvd & Giant Road, CNU4225	Earth Touch, Inc.
S-043313	2002	Historic Resources Survey for East Altamont Energy Center	California Energy Commission, PAR Environmental Services, Inc.
S-043685	2010	Cultural Resources Inventory for the San Joaquin Valley Right-of-Way Maintenance Environmental Assessment Project	Garcia and Associates
S-046773	2015	Brentwood Recycled Water Pipeline Project, Cultural Resources Assessment, Contra Costa County, California	
S-046889	2011	Pacific Gas and Electric Lines 114 and 191 Replacement Project, Archaeological Survey Report, Contra Costa County, California	Condor Country Consulting, Inc.
S-047775	2016	Historic Property Survey Report for the CCTA Interstate 680 Express Lanes Project, Contra Costa County, California; 04-CCO-680 PM R8.0-25.0, EA 04H610 (EFIS ID# 0413000216)	Far Western Anthropological Research Group, Inc.
S-051366	2013	Cultural Resources Constraints Report: Kirker 2106 Blitz-Pittsburg Utility Pole Replacement Project	Cardno ENTRIX
S-051501	2016	Cultural Resources Constraints Report, Pittsburg-Eastshore-San Mateo-Tassajara-San Ramon-Moraga 230 kV Transmission Line ROW Vegetation Management, PM Number: 8099163	Blue Rock Services, Inc

Location information

County: Contra Costa

USGS quad(s): Antioch North, Antioch South, Brentwood, Byron Hot Springs, Clifton Court Forebay, Honker Bay, Jersey Island, Mare Island, Richmond, Vine Hill

Address:

PLSS: T2N R2E SW¼ of NE¼ of Sec. 28 MDBM

UTMs: Zone 10 556155mE 4202761mN NAD83 (Railroad Spurs & Warehouse Com
Zone 10 610358mE 4204680mN NAD83 (Contra Costa Canal Segment)
Zone 10 623822mE 4186953mN NAD83 (CA Aqueduct Segment)
Zone 10 599400mE 4208190mN NAD27
Zone 10 601500mE 4207340mN NAD27
Zone 10 608937mE 4205831mN NAD83 (9/18/08 record)

Management status

Resource Detail: P-07-000813

Database record metadata

	Date	User	
Entered:	4/1/2005	icrds	
Last modified:	1/11/2021	neala	
IC actions:	*Date*	*User*	*Action taken*
	7/18/2016	Thibaulte	added recording event 'M'
	4/25/2017	moored	Added recording event 'n', took recording event from P-07-000487. Updated GIS to include this segment
	3/10/2017	rinerg	digitize section of RR from Scott's 1999 recording - between West Pittsburg to eastern edge of Honker Bay 7.5'
	10/12/2015	paganob	added recording event 9/18/08
	3/10/2017	rinerg	add digitization of spurs & warehouse from Billat 2011 recording (located in Richmond/San Pablo area)
	3/10/2017	rinerg	digitize section of railroad through Hercules Powder plant - between Rodeo and Pinole Creek in Mare Island 7.5' (Norwood; Beck; Tilton recording of 2009/2010) (only digitized area in their project boundary)
	8/24/2000	AOLPJ	Primary number 07-000813 assigned.
	8/24/2000	AOLPJ	Trinomial CCO-000733 assigned.
	4/1/2005	jay	Appended records from discontinued ICRDS.
	9/18/2006	leigh	nrcs fg added Antioch North
Record status:	Verified		

Resource Detail: P-07-000814

Identifying information

Primary No.:	P-07-000814	
Trinomial:		
Name:	967 Carpino Way	
Other IDs:	*Type*	*Name*
	Resource Name	967 Carpino Way
	Other	Map Reference #11
	Other	Evans Residence
Cross-refs:		

Attributes

Resource type:	Building
Age:	Historic
Information base:	Survey
Attribute codes:	HP02 (Single family property)
Disclosure:	Unrestricted
Collections:	No
Accession no(s):	
Facility:	

General notes

Recording events

Date	*Recorder(s)*	*Affiliation*	*Notes*
10/6/1999	Janice Calpo	Jones & Stokes	

Associated reports

Report No.	*Year*	*Title*	*Affiliation*
S-022929	2000	Positive Archaeological Survey and Historic Resources Evaluation Report for the State Route 4/Loveridge Road Flood Relief Project - Kirker Creek, City of Pittsburg, Contra Costa County	Jones & Stokes
S-022930		VOIDED S#- see additional citation 'b' of S-22929	

Location information

County:	Contra Costa			
USGS quad(s):	Antioch North			
Address:	*Address*	*City*	*Assessor's parcel no.*	*Zip code*
	967 Carpino Way		073-171-001	
PLSS:				
UTMs:				

Management status

Database record metadata

	Date	*User*	
Entered:	4/1/2005	icrds	
Last modified:	5/13/2019	neala	
IC actions:	*Date*	*User*	*Action taken*
	5/7/2019	moored	Corrected attributes, disclosure, collections, and recording event. Added other ids and APN. GIS Update: Remapped to better encompass house and match presented parcel boundaries of 1999 recording event. Shifted a bit farther north in process.
	8/24/2000	AOLPJ	Primary number 07-000814 assigned.
	4/1/2005	jay	Appended records from discontinued ICRDS.

Resource Detail: P-07-000815

Identifying information

Primary No.: P-07-000815

Trinomial:

Name: 959 Carpino Way

Other IDs:

Type	*Name*
Resource Name	959 Carpino Way
Other	Map Reference # 12
Other	Johnson Residence

Cross-refs:

Attributes

Resource type: Building

Age: Historic

Information base: Survey

Attribute codes: HP02 (Single family property)

Disclosure: Unrestricted

Collections: No

Accession no(s):

Facility:

General notes

Recording events

Date	*Recorder(s)*	*Affiliation*	*Notes*
10/6/1999	Janice Calpo	Jones & Stokes	

Associated reports

Report No.	*Year*	*Title*	*Affiliation*
S-022929	2000	Positive Archaeological Survey and Historic Resources Evaluation Report for the State Route 4/Loveridge Road Flood Relief Project - Kirker Creek, City of Pittsburg, Contra Costa County	Jones & Stokes
S-022930		VOIDED S#- see additional citation 'b' of S-22929	

Location information

County: Contra Costa

USGS quad(s): Antioch North

Address:

Address	*City*	*Assessor's parcel no.*	*Zip code*
959 Carpino Way		073-171-002	

PLSS:

UTMs:

Management status

Database record metadata

	Date	*User*
Entered:	4/1/2005	icrds
Last modified:	5/13/2019	neala

IC actions:

Date	*User*	*Action taken*
5/7/2019	moored	Corrected attributes, disclosure, collections, and recording event. Added other ids and APN. GIS Update: Remapped to better encompass house and match presented parcel boundaries of 1999 recording event. Shifted a bit farther north in process.
8/24/2000	AOLPJ	Primary number 07-000815 assigned.
4/1/2005	jay	Appended records from discontinued ICRDS.

Resource Detail: P-07-000816

Identifying information

Primary No.: P-07-000816
Trinomial:
Name: 953 Carpino Way
Other IDs:

Type	Name
Resource Name	953 Carpino Way
Other	Map Reference #13
Other	McKennon Residence

Cross-refs:

Attributes

Resource type: Building
Age: Historic
Information base: Survey
Attribute codes: HP02 (Single family property)
Disclosure: Unrestricted
Collections: No
Accession no(s):
Facility:

General notes

Recording events

Date	Recorder(s)	Affiliation	Notes
10/6/1999	Janice Calpo	Jones & Stokes	

Associated reports

Report No.	Year	Title	Affiliation
S-022929	2000	Positive Archaeological Survey and Historic Resources Evaluation Report for the State Route 4/Loveridge Road Flood Relief Project - Kirker Creek, City of Pittsburg, Contra Costa County	Jones & Stokes
S-022930		VOIDED S#- see additional citation 'b' of S-22929	

Location information

County: Contra Costa
USGS quad(s): Antioch North
Address:

Address	City	Assessor's parcel no.	Zip code
953 Carpino Way		073-171-003	

PLSS:
UTMs:

Management status

Database record metadata

	Date	User
Entered:	4/1/2005	icrds
Last modified:	5/13/2019	neala

IC actions:

Date	User	Action taken
5/7/2019	moored	Corrected attributes, disclosure, collections, and recording event. Added other ids and APN. GIS Update: Remapped to better encompass house and match presented parcel boundaries of 1999 recording event. Shifted a bit farther north in process.
8/24/2000	AOLPJ	Primary number 07-000816 assigned.
4/1/2005	jay	Appended records from discontinued ICRDS.

Resource Detail: P-07-000817

Identifying information

Primary No.: P-07-000817
Trinomial:
Name: 947 Carpino Way
Other IDs:

Type	*Name*
Resource Name	947 Carpino Way
Other	Map Reference #14

Cross-refs:

Attributes

Resource type: Building
Age: Historic
Information base: Survey
Attribute codes: HP02 (Single family property)
Disclosure: Unrestricted
Collections: No
Accession no(s):
Facility:

General notes

Recording events

Date	*Recorder(s)*	*Affiliation*	*Notes*
10/6/1999	Janice Calpo	Jones & Stokes	

Associated reports

Report No.	*Year*	*Title*	*Affiliation*
S-022929	2000	Positive Archaeological Survey and Historic Resources Evaluation Report for the State Route 4/Loveridge Road Flood Relief Project - Kirker Creek, City of Pittsburg, Contra Costa County	Jones & Stokes
S-022930		VOIDED S#- see additional citation 'b' of S-22929	

Location information

County: Contra Costa
USGS quad(s): Antioch North
Address:

Address	*City*	*Assessor's parcel no.*	*Zip code*
947 Carpino Way		073-171-004	

PLSS:
UTMs:

Management status

Database record metadata

	Date	*User*
Entered:	4/1/2005	icrds
Last modified:	5/13/2019	neala

IC actions:

Date	*User*	*Action taken*
5/7/2019	moored	Corrected attributes, disclosure, collections, and recording event. Added other ids and APN. GIS Update: Remapped to better encompass house and match presented parcel boundaries of 1999 recording event. Shifted a bit farther north in process.
8/24/2000	AOLPJ	Primary number 07-000817 assigned.
4/1/2005	jay	Appended records from discontinued ICRDS.
9/18/2006	leigh	nrcs fg added Antioch North

Resource Detail: P-07-000818

Identifying information

Primary No.: P-07-000818

Trinomial:

Name: 941 Carpino Way

Other IDs:

Type	*Name*
Resource Name	941 Carpino Way
Other	Map Reference #15
Other	Brown Residence

Cross-refs:

Attributes

Resource type: Building

Age: Historic

Information base: Survey

Attribute codes: HP02 (Single family property)

Disclosure: Unrestricted

Collections: No

Accession no(s):

Facility:

General notes

Recording events

Date	*Recorder(s)*	*Affiliation*	*Notes*
10/6/1999	Janice Calpo	Jones & Stokes	

Associated reports

Report No.	*Year*	*Title*	*Affiliation*
S-022929	2000	Positive Archaeological Survey and Historic Resources Evaluation Report for the State Route 4/Loveridge Road Flood Relief Project - Kirker Creek, City of Pittsburg, Contra Costa County	Jones & Stokes
S-022930		VOIDED S#- see additional citation 'b' of S-22929	

Location information

County: Contra Costa

USGS quad(s): Antioch North

Address:

Address	*City*	*Assessor's parcel no.*	*Zip code*
941 Carpino Way		073-171-005	

PLSS:

UTMs:

Management status

Database record metadata

	Date	*User*
Entered:	4/1/2005	icrds
Last modified:	5/13/2019	neala

IC actions:

Date	*User*	*Action taken*
5/7/2019	moored	Corrected attributes, disclosure, collections, and recording event. Added other ids and APN. GIS Update: Remapped to better encompass house and match presented parcel boundaries of 1999 recording event. Shifted a bit farther north in process.
8/24/2000	AOLPJ	Primary number 07-000818 assigned.
4/1/2005	jay	Appended records from discontinued ICRDS.

Resource Detail: P-07-000819

Identifying information

Primary No.:	P-07-000819	
Trinomial:		
Name:	935 Carpino Way	
Other IDs:	*Type*	*Name*
	Resource Name	935 Carpino Way
	Other	Map Reference #16
	Other	Nathan Brown Residence
Cross-refs:		

Attributes

Resource type:	Building
Age:	Historic
Information base:	Survey
Attribute codes:	HP02 (Single family property)
Disclosure:	Unrestricted
Collections:	No
Accession no(s):	
Facility:	

General notes

Recording events

Date	*Recorder(s)*	*Affiliation*	*Notes*
10/6/1999	Janice Calpo	Jones & Stokes	

Associated reports

Report No.	*Year*	*Title*	*Affiliation*
S-022929	2000	Positive Archaeological Survey and Historic Resources Evaluation Report for the State Route 4/Loveridge Road Flood Relief Project - Kirker Creek, City of Pittsburg, Contra Costa County	Jones & Stokes
S-022930		VOIDED S#- see additional citation 'b' of S-22929	

Location information

County:	Contra Costa			
USGS quad(s):	Antioch North			
Address:	*Address*	*City*	*Assessor's parcel no.*	*Zip code*
	935 Carpino Way		073-171-006	
PLSS:				
UTMs:				

Management status

Database record metadata

	Date	*User*	
Entered:	4/1/2005	icrds	
Last modified:	5/13/2019	neala	
IC actions:	*Date*	*User*	*Action taken*
	5/7/2019	moored	Corrected attributes, disclosure, collections, and recording event. Added other ids and APN. GIS Update: Remapped to better encompass house and match presented parcel boundaries of 1999 recording event. Shifted a bit farther north in process.
	8/24/2000	AOLPJ	Primary number 07-000819 assigned.
	4/1/2005	jay	Appended records from discontinued ICRDS.

Resource Detail: P-07-000820

Identifying information

Primary No.: P-07-000820
Trinomial:
Name: 929 Carpino Way
Other IDs:

Type	*Name*
Resource Name	929 Carpino Way
Other	Map Reference #17
Other	Nichols Residence

Cross-refs:

Attributes

Resource type: Building
Age: Historic
Information base: Survey
Attribute codes: HP02 (Single family property)
Disclosure: Unrestricted
Collections: No
Accession no(s):
Facility:

General notes

Recording events

Date	*Recorder(s)*	*Affiliation*	*Notes*
10/6/1999	Janice Calpo	Jones & Stokes	

Associated reports

Report No.	*Year*	*Title*	*Affiliation*
S-022929	2000	Positive Archaeological Survey and Historic Resources Evaluation Report for the State Route 4/Loveridge Road Flood Relief Project - Kirker Creek, City of Pittsburg, Contra Costa County	Jones & Stokes
S-022930		VOIDED S#- see additional citation 'b' of S-22929	

Location information

County: Contra Costa
USGS quad(s): Antioch North
Address:

Address	*City*	*Assessor's parcel no.*	*Zip code*
929 Carpino Way		073-171-007	

PLSS:
UTMs:

Management status

Database record metadata

	Date	*User*
Entered:	4/1/2005	icrds
Last modified:	5/13/2019	neala

IC actions:

Date	*User*	*Action taken*
5/7/2019	moored	Corrected attributes, disclosure, collections, and recording event. Added other ids and APN. GIS Update: Remapped to better encompass house and match presented parcel boundaries of 1999 recording event. Shifted a bit farther north in process.
8/24/2000	AOLPJ	Primary number 07-000820 assigned.
4/1/2005	jay	Appended records from discontinued ICRDS.

Resource Detail: P-07-000821

Identifying information

Primary No.: P-07-000821
Trinomial:
Name: 923 Carpino Way
Other IDs:

Type	Name
Resource Name	923 Carpino Way
Other	Map Reference #18
Other	Jack Residence

Cross-refs:

Attributes

Resource type: Building
Age: Historic
Information base: Survey
Attribute codes: HP02 (Single family property)
Disclosure: Unrestricted
Collections: No
Accession no(s):
Facility:

General notes

Recording events

Date	Recorder(s)	Affiliation	Notes
10/6/1999	Janice Calpo	Jones & Stokes	

Associated reports

Report No.	Year	Title	Affiliation
S-022929	2000	Positive Archaeological Survey and Historic Resources Evaluation Report for the State Route 4/Loveridge Road Flood Relief Project - Kirker Creek, City of Pittsburg, Contra Costa County	Jones & Stokes
S-022930		VOIDED S#- see additional citation 'b' of S-22929	

Location information

County: Contra Costa
USGS quad(s): Antioch North
Address:

Address	City	Assessor's parcel no.	Zip code
923 Carpino Way		073-171-008	

PLSS:
UTMs:

Management status

Database record metadata

	Date	User
Entered:	4/1/2005	icrds
Last modified:	5/13/2019	neala

IC actions:

Date	User	Action taken
5/7/2019	moored	Corrected attributes, disclosure, collections, and recording event. Added other ids and APN. GIS Update: Remapped to better encompass house and match presented parcel boundaries of 1999 recording event. Shifted a bit farther north in process.
8/24/2000	AOLPJ	Primary number 07-000821 assigned.
4/1/2005	jay	Appended records from discontinued ICRDS.

Resource Detail: P-07-000822

Identifying information

Primary No.: P-07-000822
Trinomial:
Name: 919 Carpino Way
Other IDs:

Type	*Name*
Resource Name	919 Carpino Way
Other	Map Reference #19
Other	Lawson Residence
Other	Fuller Residence

Cross-refs:

Attributes

Resource type: Building
Age: Historic
Information base: Survey
Attribute codes: HP02 (Single family property)
Disclosure: Unrestricted
Collections: No
Accession no(s):
Facility:

General notes

Recording events

Date	*Recorder(s)*	*Affiliation*	*Notes*
10/6/1999	Janice Calpo	Jones & Stokes	

Associated reports

Report No.	*Year*	*Title*	*Affiliation*
S-022929	2000	Positive Archaeological Survey and Historic Resources Evaluation Report for the State Route 4/Loveridge Road Flood Relief Project - Kirker Creek, City of Pittsburg, Contra Costa County	Jones & Stokes
S-022930		VOIDED S#- see additional citation 'b' of S-22929	

Location information

County: Contra Costa
USGS quad(s): Antioch North
Address:

Address	*City*	*Assessor's parcel no.*	*Zip code*
919 Carpino Way		073-162-001	

PLSS:
UTMs:

Management status

Database record metadata

	Date	*User*
Entered:	4/1/2005	icrds
Last modified:	5/13/2019	neala

IC actions:

Date	*User*	*Action taken*
5/7/2019	moored	Corrected attributes, disclosure, collections, and recording event. Added other ids and APN. GIS Update: Remapped to better encompass house and match presented parcel boundaries of 1999 recording event. Shifted a bit farther north in process.
8/24/2000	AOLPJ	Primary number 07-000822 assigned.

Resource Detail: P-07-000823

Identifying information

Primary No.:	P-07-000823	
Trinomial:		
Name:	913 Carpino Way	
Other IDs:	*Type*	*Name*
	Resource Name	913 Carpino Way
	Other	Map Reference #20
	Other	Moore Residence
Cross-refs:		

Attributes

Resource type:	Building
Age:	Historic
Information base:	Survey
Attribute codes:	HP02 (Single family property)
Disclosure:	Unrestricted
Collections:	No
Accession no(s):	
Facility:	

General notes

Recording events

	Date	*Recorder(s)*	*Affiliation*	*Notes*
a	10/6/1999	Janice Calpo	Jones & Stokes	

Associated reports

Report No.	*Year*	*Title*	*Affiliation*
S-022929	2000	Positive Archaeological Survey and Historic Resources Evaluation Report for the State Route 4/Loveridge Road Flood Relief Project - Kirker Creek, City of Pittsburg, Contra Costa County	Jones & Stokes
S-022930		VOIDED S#- see additional citation 'b' of S-22929	

Location information

County:	Contra Costa			
USGS quad(s):	Antioch North			
Address:	*Address*	*City*	*Assessor's parcel no.*	*Zip code*
	913 Carpino Way		073-162-002	
PLSS:				
UTMs:				

Management status

Database record metadata

	Date	*User*	
Entered:	4/1/2005	icrds	
Last modified:	5/13/2019	neala	
IC actions:	*Date*	*User*	*Action taken*
	5/7/2019	moored	Added other id and APN. GIS Update: Remapped to better encompass house and match presented parcel boundaries of 1999 recording event. Shifted a bit farther north in process.
	8/24/2000	AOLPJ	Primary number 07-000823 assigned.
	4/1/2005	jay	Appended records from discontinued ICRDS.
	9/18/2006	leigh	nrcs fg added Antioch North

Resource Detail: P-07-000824

Identifying information

Primary No.: P-07-000824
Trinomial:
Name: 907 Carpino Way
Other IDs:

Type	*Name*
Resource Name	907 Carpino Way
Other	Map Reference #21

Cross-refs:

Attributes

Resource type: Building
Age: Historic
Information base: Survey
Attribute codes: HP02 (Single family property)
Disclosure: Unrestricted
Collections: No
Accession no(s):
Facility:

General notes

Recording events

	Date	*Recorder(s)*	*Affiliation*	*Notes*
a	10/6/1999	Janice Calpo	Jones & Stokes	

Associated reports

Report No.	*Year*	*Title*	*Affiliation*
S-022929	2000	Positive Archaeological Survey and Historic Resources Evaluation Report for the State Route 4/Loveridge Road Flood Relief Project - Kirker Creek, City of Pittsburg, Contra Costa County	Jones & Stokes
S-022930		VOIDED S#- see additional citation 'b' of S-22929	

Location information

County: Contra Costa
USGS quad(s): Antioch North
Address:

Address	*City*	*Assessor's parcel no.*	*Zip code*
907 Carpino Way		073-162-003	

PLSS:
UTMs:

Management status

Database record metadata

	Date	*User*
Entered:	4/1/2005	icrds
Last modified:	5/13/2019	neala

IC actions:

Date	*User*	*Action taken*
5/8/2019	moored	Corrected capitalization and added APN. GIS Update: Remapped to better encompass house and match presented parcel boundaries of 1999 recording event. Shifted a bit farther north in process.
10/13/2015	neala	removed AH15-standing structures, inappropriate attribute
8/24/2000	AOLPJ	Primary number 07-000824 assigned.
4/1/2005	jay	Appended records from discontinued ICRDS.
9/18/2006	leigh	nrcs fg added Antioch North

Resource Detail: P-07-000826

Identifying information

Primary No.:	P-07-000826	
Trinomial:		
Name:	950 El Pueblo Avenue	
Other IDs:	*Type*	*Name*
	Resource Name	950 El Pueblo Avenue
	Other	Map Reference #10
	Other	Martin Luther King Elementary School
	Other	El Pueblo Elementary School
Cross-refs:		

Attributes

Resource type:	Building
Age:	Historic
Information base:	Survey
Attribute codes:	HP15 (Educational building)
Disclosure:	Unrestricted
Collections:	No
Accession no(s):	
Facility:	

General notes

Recording events

Date	*Recorder(s)*	*Affiliation*	*Notes*
10/6/1999	Janice Calpo	Jones & Stokes	

Associated reports

Report No.	*Year*	*Title*	*Affiliation*
S-022929	2000	Positive Archaeological Survey and Historic Resources Evaluation Report for the State Route 4/Loveridge Road Flood Relief Project - Kirker Creek, City of Pittsburg, Contra Costa County	Jones & Stokes
S-022930		VOIDED S#- see additional citation 'b' of S-22929	

Location information

County:	Contra Costa			
USGS quad(s):	Antioch North			
Address:	*Address*	*City*	*Assessor's parcel no.*	*Zip code*
	950 El Pueblo Avenue		073-150-001	
PLSS:				
UTMs:				

Management status

Database record metadata

	Date	*User*	
Entered:	4/1/2005	icrds	
Last modified:	5/9/2019	moored	
IC actions:	*Date*	*User*	*Action taken*
	5/7/2019	moored	Corrected attributes, disclosure, collections, and recording event. Added other ids and APN.
	8/24/2000	AOLPJ	Primary number 07-000826 assigned.
	4/1/2005	jay	Appended records from discontinued ICRDS.
	9/18/2006	leigh	nrcs fg added Antioch North

Resource Detail: P-07-000828

Identifying information

Primary No.: P-07-000828
Trinomial:
Name: 1600 Loveridge Road
Other IDs:

Type	*Name*
Resource Name	1600 Loveridge Road
Other	Map Reference #22

Cross-refs:

Attributes

Resource type: Building
Age: Historic
Information base: Survey
Attribute codes: HP09 (Public utility building)
Disclosure: Unrestricted
Collections: No
Accession no(s):
Facility:

General notes

Recording events

Date	*Recorder(s)*	*Affiliation*	*Notes*
10/6/1999	Janice Calpo	Jones & Stokes	

Associated reports

Report No.	*Year*	*Title*	*Affiliation*
S-022929	2000	Positive Archaeological Survey and Historic Resources Evaluation Report for the State Route 4/Loveridge Road Flood Relief Project - Kirker Creek, City of Pittsburg, Contra Costa County	Jones & Stokes
S-022930		VOIDED S#- see additional citation 'b' of S-22929	

Location information

County: Contra Costa
USGS quad(s): Antioch North
Address:

Address	*City*	*Assessor's parcel no.*	*Zip code*
1600 Loveridge Road	Pittsburg	073-200-013	

PLSS:
UTMs:

Management status

Database record metadata

	Date	*User*
Entered:	4/1/2005	icrds
Last modified:	5/13/2019	akmenkalnsj

IC actions:

Date	*User*	*Action taken*
5/7/2019	moored	Corrected collections. GIS Update: remapped to better encompass the whole power station. Expanded boundaries a bit west, but general location unchanged.
5/13/2019	akmenkalnsj	Verified
8/24/2000	AOLPJ	Primary number 07-000828 assigned.
4/1/2005	jay	Appended records from discontinued ICRDS.
9/18/2006	leigh	nrcs fg added Antioch North

Resource Detail: P-07-001920

Identifying information

Primary No.: P-07-001920
Trinomial:
Name: Shell Chemical Electric Utility Towers
Other IDs:

Type	*Name*
Resource Name	Shell Chemical Electric Utility Towers
OTIS Resource Num	500511
OHP PRN	DOE-07-96-0002-0000 6Y
OHP PRN	FHWA960812A 6Y
OHP Property Numb	106896

Cross-refs: Physically overlaps or intersects 07-002498
Physically overlaps or intersects 07-002500
Physically overlaps or intersects 07-002772

Attributes

Resource type: Structure
Age: Historic
Information base: Survey, Other
Attribute codes: HP11 (Engineering structure) - Electrical Towers/Lines
Disclosure: Unrestricted
Collections: No
Accession no(s):
Facility:

General notes

Recording events

Date	*Recorder(s)*	*Affiliation*	*Notes*
9/27/1995	Laurence H. Shoup, Ward Hill	Archaeological/Historical Consultants	

Associated reports

Report No.	*Year*	*Title*	*Affiliation*
S-020405	1996	Historic Architectural Survey Report, Route 4 East Project, Contra Costa County, California (04-CC-4, PM R14.6-24.0, KP 23.5-38.6, EA 228260)	Archaeological/Historical Consultants

Location information

County: Contra Costa
USGS quad(s): Antioch North, Honker Bay
Address:

Address	*City*	*Assessor's parcel no.*	*Zip code*
	Pittsburg		94565

PLSS:
UTMs:

Management status

OTIS ID	*Prop. ID*	*OHP Unit*	*Unit Activity ID*	*Status*	*Criteria*	*Evaluator*	*Date*
500511	106896	Investigation	DOE-07-96-0002-0000	6Y		CCPR	12/27/199
500511	106896	Review and Com	FHWA960812A	6Y		CCPR	12/27/199

Database record metadata

	Date	*User*
Entered:	4/1/2005	icrds
Last modified:	4/15/2019	neala

IC actions:

Date	*User*	*Action taken*
6/24/2002	AOOHP2	OHP Property file import

3/6/2002	AOOHP2	Primary number 07-001920 assigned.
4/1/2005	jay	Appended records from discontinued ICRDS.
4/15/2019	moored	Added other identifiers, attributes, disclosure, collections, recording event, location info, and associated report.
4/15/2019	neala	changed resource type from 'bldg to structure'
12/11/2017	rinerg	auto-convert resource name to Proper Case (was: SHELL CHEMICAL ELECTRIC UTILITY TOWERS)

Record status: Verified

Resource Detail: P-07-002771

Identifying information

Primary No.: P-07-002771
Trinomial:
Name: Map Ref #A-11
Other IDs:

Type	*Name*
Resource Name	Map Ref #A-11
Other	Loveridge Road Overcrossing Structures
Other	Loveridge Road Undercrossing #28-0108
Other	Camp Stoneman Road Undercrossing (#28-0264)
Other	Stoneman Spur Undercrossing (#28-0096)
Other	Camp Stoneman Undercrossing Pumphouse (#28-0096W)
Other	Loveridge Road Overcrossing (West) #28-0108
Other	Loveridge Road Overcrossing (East) #28-0264
Other	Stoneman Spur Undercrossing (#28-0096)
Other	Loveridge Road Pumphouse (28-0096W)

Cross-refs:

Attributes

Resource type: Structure
Age: Historic
Information base: Survey
Attribute codes: HP19 (Bridge)
Disclosure: Unrestricted
Collections: No
Accession no(s):
Facility:

General notes

Recording events

Date	*Recorder(s)*	*Affiliation*	*Notes*
2/12/2002	Meta Bunse, Bryan Larson	JRP Historical Consulting Service	

Associated reports

Report No.	*Year*	*Title*	*Affiliation*
S-031375	2004	State Route 4 (East) Widening Project: Loveridge Road to State Route 160, 04-CC-4-KP 37.8/R47.6 (PM 23.5/R29.6), EA 04275-228500, Contra Costa County	Parsons; JRP Historical Consulting Services; Far Western Anthropological Research Group, Inc.

Location information

County: Contra Costa
USGS quad(s): Antioch North
Address:

Address	*City*	*Assessor's parcel no.*	*Zip code*
	Pittsburg		

PLSS:
UTMs:

Management status

Database record metadata

	Date	*User*
Entered:	11/15/2007	blacke
Last modified:	5/13/2019	moored

IC actions:

Date	*User*	*Action taken*
5/7/2019	moored	added other ids.

Resource Detail: P-07-002772

Identifying information

Primary No.: P-07-002772
Trinomial:
Name: PG&E South tower-Contra Cosa Transmission Line
Other IDs:

Type	Name
Resource Name	PG&E South tower-Contra Cosa Transmission Line
Other	Map Ref #A-12

Cross-refs: Physically overlaps or intersects 07-001920

Attributes

Resource type: Structure
Age: Historic
Information base: Survey
Attribute codes: HP11 (Engineering structure)
Disclosure: Unrestricted
Collections: No
Accession no(s):
Facility:

General notes

Recording events

Date	Recorder(s)	Affiliation	Notes
2/4/2002	Meta Bunse, Bryan Larson	JRP Historical Consulting Service	original recording

Associated reports

Report No.	Year	Title	Affiliation
S-031375	2004	State Route 4 (East) Widening Project: Loveridge Road to State Route 160, 04-CC-4-KP 37.8/R47.6 (PM 23.5/R29.6), EA 04275-228500, Contra Costa County	Parsons; JRP Historical Consulting Services; Far Western Anthropological Research Group, Inc.

Location information

County: Contra Costa
USGS quad(s): Antioch North, Honker Bay
Address:

Address	City	Assessor's parcel no.	Zip code
	Pittsburg		
	Antioch		

PLSS:
UTMs:

Management status

Database record metadata

	Date	User
Entered:	11/15/2007	blacke
Last modified:	5/9/2017	neala
IC actions:		
Record status:	Verified	

ATTACHMENT D

Site Records

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code | Reviewer | Date

*** Resource Name or #:** SAS-001

P1. Other Identifier:

***P2. Location:** ☒ **Not for Publication** ☐ **Unrestricted** ***a. County:** Contra Costa
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b USGS 7.5' Quad:** Antioch North **Date:** 1997 **T** 2N **R** 1E
N1/2 S. 10 M.D. **B.M.**
c. Address: 2000 Loveridge Road **City:** Pittsburg **Zip:** 94565
d. UTM: Zone: 10; 599,559.90 mE/ 4,208,105.52 mN Datum: NAD 83 midpoint
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) Elevation: 36.0 ft. amsl
From the City of Pittsburg City Center, head south on Railroad Avenue for approx.. 400 ft. and turn left onto California Avenue. Proceed on California Avenue for approx. 1.3 mi. and turn left onto Loveridge Road and proceed about 470 ft. to air separation plant on left. SAS-001 is on the west side of the facility.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
This standard-gauge rail spur extends from the Southern Pacific Railroad (SPRR) line north of California Avenue. It was constructed sometime between 1964, and 1966 and exhibits typical 20th century rail line construction and materials such as crushed basalt gravel ballast, treated wood ties, steel rails, spikes, and tie plates. The gravel rail bed measures approximately 36 ft. wide at the base and about 25 ft. wide on top and sits approximately 3 or 4 ft. above the surrounding landscape. This is actively used and well maintained and from the SPRR to its end in an industrial complex is approximately 1,261 ft. About 300 ft. north of the southern terminus at the Linde, Inc. plant, the line splits into two tracks A pile of approximately six wood ties, each about 13 ft. in length were documented near the point where the spur connects to the main SPRR line.

***P3b. Resource Attributes:** AH7 Railroad grade
***P34. Resources Present:** ☐ Building ☐ Structure ☐ Object ☑ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5b. Description of Photo:
SAS Photo 3041. SPRR spur line, view to north

***P6. Date Constructed/Age and Sources:**
☑ Historic ☐ Prehistoric ☐ Both

***P7. Owner and Address:**
Linde, Inc.
2000 Loveridge Rd.
Pittsburg, CA 94565

***P8. Recorded by:**
K. Skinner, K. Fothergill
Solano Archaeological Services, LLC
P.O. Box 367
Elmira, CA 95625

P9. Date Recorded: June 23, 2023

P.10. Survey Type: Intensive pedestrian

***P11. Report Citation:** Ludwig and Coleman 2023. Cultural Resources Technical Memorandum – Project Oakstone Northern California Expansion Project, City of Pittsburg, Contra Costa County, California. Report prepared by Solano Archaeological Services, Elmira, CA, for RCH Group, Rancho Murietta, CA.

* Attachments: ☐ NONE ☑ Location Map ☐Sketch Map ☐ Continuation Sheet ☐ Building, Structure, Object Record
☐Archaeological Record ☐ District Record ☑ Linear Feature Record ☐Milling Station Record ☐ Rock Art Record
☐ Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LINEAR FEATURE RECORD

Primary #
HRI #
Trinomial

Resource Name or #: SAS-001

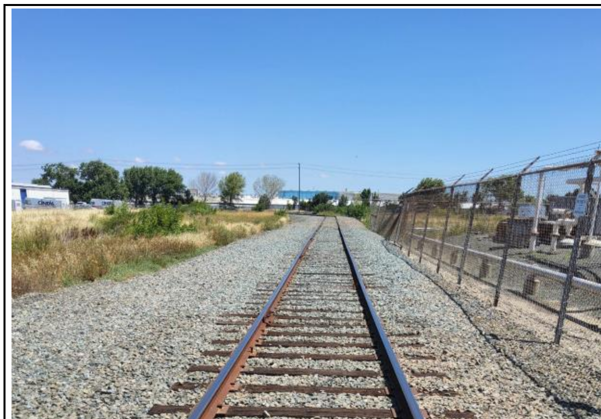
L1. Historic and/or Common Name: Southern Pacific Railroad spur

L2a. Portion Described: ☑ Entire Resource ☐ Segment ☐ Point Observation **Designation:**

b. Location of point or segment: North Terminus: 599,525.03 mE, 4,208,293.94 mN
South Terminus: 599,498.33 mE, 4,207,956.76 mN

L3. Description: (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)

Resource consists of a common standard-gauge railroad grade spur extending to the south-westwest off a main Southern Pacific Railroad Line. The spur connects to the main line at a 90-degree angle. The grade was constructed of crushed basaltic gravel and retains wood ties, and steel rails, spikes, and plates circa 1965. As of this documentation, the spur and main SPRR lines are active.


L4e. Sketch of Cross-Section

L4. Dimensions: (In feet for historic features and meters for prehistoric features)

a. Top Width: 25 ft.
b. Bottom Width: 36 ft.
c. Height or Depth: 3-4 ft.
d. Length of Segment: 1,261 ft.

L5. Associated Resources: Main SPRR line intersecting with SAS-001 and a pile of 6 ties located at the point where this spur connects with the main SPRR line

L6. Setting: (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
The northern portion of this railroad spur is located in a presently undeveloped lot and the southern portion is within an industrial facility.


L8a. Photograph, Map or Drawing

L7. Integrity Considerations: Spur line is presently active and well-maintained

L8b. Description of Photo, Map, or Drawing
SAS Photo 1901. East of north terminus showing spur cuving to south

L9. Remarks: None

L10. Form Prepared by:
Brian Ludwig, Ph.D.
Solano Archaeological Services, LLC
P.O. Box 367
Elmira, CA 95625

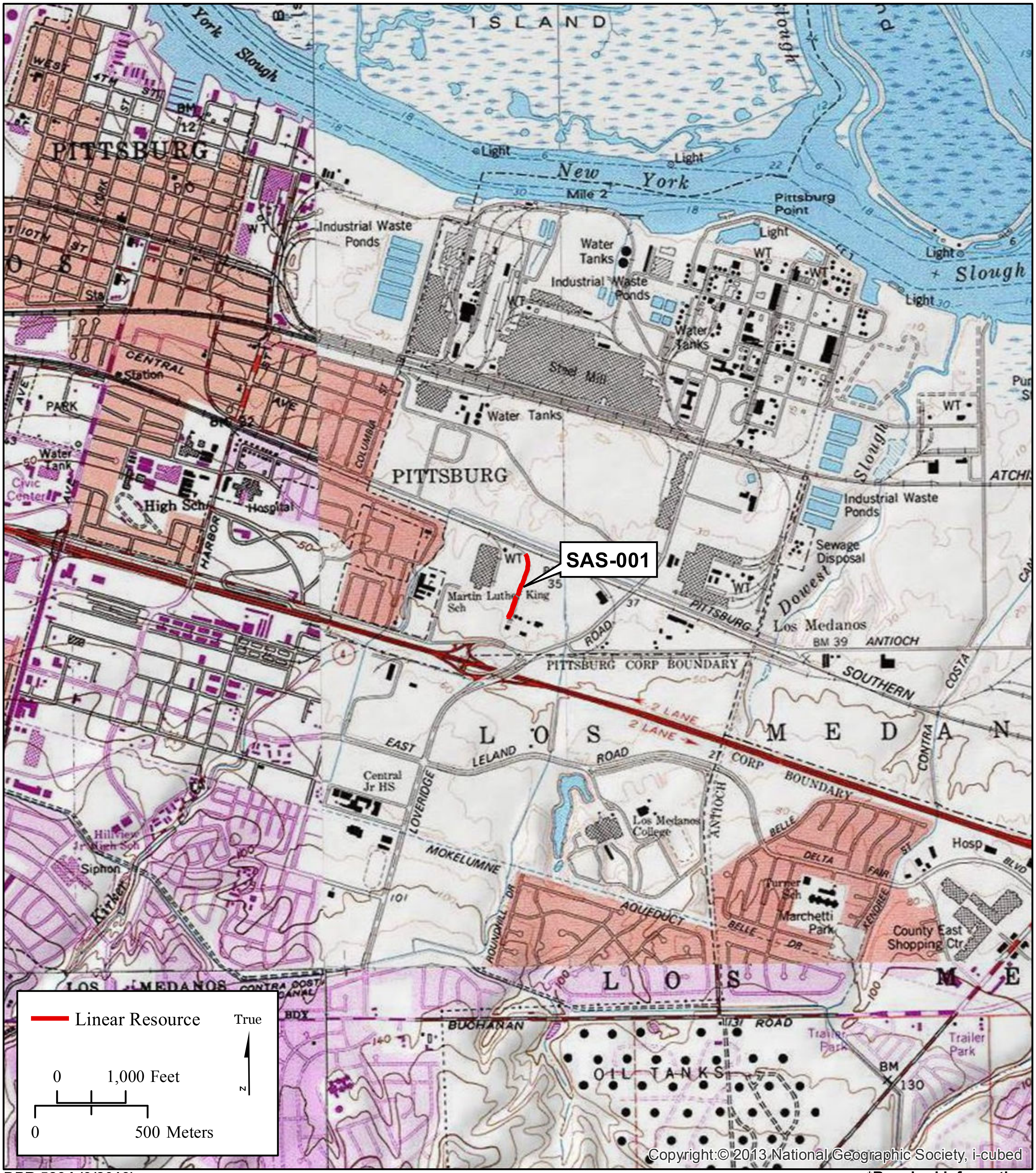
L11. Date:
July 3, 2023

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary #
HRI#
Trinomial

 ***Resource Name or #** SAS-001

***Map Name and Date:** Antioch North, 1979 ***Scale:** 1:24,000 ***Date Map Created:** 7/03/2023



ATTACHMENT E

Representative Project Area Photographs


Photo 3942. Project area overview, view to north


Photo 3947. Project area overview, view to south


Photo 4839. Project area NW corner, view to NW


Photo 1901. SPRR spur, near N terminus, view to E


Photo 3041. SPRR spur at mid-section, view to north


Photo 1036. RR tie pile near north terminus of RR spur