

Initial Study/ Mitigated Negative Declaration

Roache Road Well Project

June 2020

Prepared by:



**City of Watsonville
250 Main Street
Watsonville, California 95076
Contact: Beau Kayser**

Prepared with the assistance of:



**450 Lincoln Avenue, Suite 103
Salinas, California 93901
(831) 789-8670
Contact: Kate Giberson**

This document is printed on recycled paper with 30 percent post-consumer content.

Table of Contents

Acronyms and Abbreviations	iii
Document Overview	v
Section 1 Project Description	1
1.1 Project Overview	1
1.2 Project Location	1
1.3 Project Purpose and Background	1
1.4 Proposed Project Elements and Overall Site Plan	1
1.4.1 Well and Pump Station	1
1.4.2 Emergency Generator	2
1.4.3 Treatment System	2
1.4.4 Other Improvements	2
1.5 Project Construction	10
1.5.1 Construction Phases, Schedule and Hours	10
1.5.2 Earthwork	10
1.6 Construction and Operation Best Management Practices	13
1.7 Regulatory Requirements, Permits, and Approvals	15
1.7.1 Project Design	15
1.7.2 Required Permits and Approvals	16
Section 2 Initial Study Checklist	17
2.1 Project Information	17
2.2 Summary of Required Mitigation Measures	18
2.3 Environmental Factors Potentially Affected	19
2.4 Lead Agency Determination	20
2.5 Evaluation of Environmental Impacts	21
2.5.1 Aesthetics	22
2.5.2 Agriculture and Forestry Resources	24
2.5.3 Air Quality	26
2.5.4 Biological Resources	31
2.5.5 Cultural Resources	41
2.5.6 Energy	44
2.5.7 Geology and Soils	46
2.5.8 Greenhouse Gas Emissions	51
2.5.9 Hazards and Hazardous Materials	54
2.5.10 Hydrology and Water Quality	59
2.5.11 Land Use and Planning	64
2.5.12 Mineral Resources	66
2.5.13 Noise	68

2.5.14	Population and Housing	72
2.5.15	Public Services	74
2.5.16	Recreation	76
2.5.17	Transportation	77
2.5.18	Tribal Cultural Resources	80
2.5.19	Utilities and Service Systems.....	82
2.5.20	Wildfire.....	85
2.5.21	Mandatory Findings of Significance.....	88
Section 3	List of Preparers	91
3.1	Lead Agency.....	91
3.2	Consultants.....	91
Section 4	References	93
Figures		
Figure 1.	Regional Location	3
Figure 2.	Project Site Location and Area of Potential Effect	5
Figure 3.	Proposed Improvements.....	7
Figure 4.	Location of Santa Cruz Tarplant	33
Figure 5.	Airport Land Use Plan.....	37
Tables		
Table 1.	Construction Estimates for Earthwork.....	11
Table 2.	Estimated Construction Daily Maximum Air Pollutant Emissions (lbs./day)	28
Table 3.	Typical Noise Levels for Common Construction Equipment (at 50 feet).....	70
Appendices		
Appendix A. Air Quality Model Outputs		
Appendix B. Biological Resources Background Information		

Acronyms and Abbreviations

AAQS	Ambient Air Quality Standards
AB	Assembly Bill
Alquist-Priolo	Alquist-Priolo Earthquake Fault Zoning Act
ALUCP	airport land use compatibility plan
AMP	airport master plan
APE	Area of Potential Effect
AQMP	air quality management plan
bgs	below ground surface
BMP	best management practice
CAA	Clean Air Act
CalEEMod	California Emissions Estimator Model
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCAA	California Clean Air Act
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CH ₄	methane
CMU	Concrete masonry unit
CNDDDB	California Rare Plant Rank
CNPS	California Native Plant Society
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalent
cy	cubic yard
dB	decibel
dBA	A-weighted decibel
EIR	environmental impact report
FEMA	Federal Emergency Management Agency
GHG	greenhouse gas
GIS	geographic information system
gpm	gallons per minute
GPS	Global Positioning System
HVAC	heating, ventilation, and air conditioning
IPaC	Information for Planning and Consultation
IS	initial study
L _{max}	maximum sound level
LOS	level of service
MBARD	Monterey Bay Air Resources District
MBCP	Monterey Bay Community Power
MCL	Maximum contaminant level
MND	mitigated negative declaration
MT	metric ton
N ₂ O	nitrous oxide

NAAQS	National Ambient Air Quality Standards
NCCAB	North Central Coast Air Basin
NO	nitric oxide
NO _x	nitrogen oxides
NWIC	Northwest Information Center
OPR	Office of Planning and Research
PF	Public Facilities
PG&E	Pacific Gas & Electric
PM	particulate matter
PM ₁₀	particulate matter measuring no more than 10 microns in diameter
PM _{2.5}	fine particulate matter measuring no more than 2.5 microns in diameter
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
PPV	peak particle velocity
PVGB	Pajaro Valley Groundwater Basin
SIP	State Implementation Plan
SO _x	sulfur oxides
TAC	toxic air contaminant
TCR	tribal cultural resource
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Services
VdB	vibration decibel
VMТ	vehicle miles traveled
VOC	volatile organic compound

Document Overview

This Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared in accordance with California Environmental Quality Act (CEQA) and the CEQA Guidelines for the proposed Roache Road Well Project (project). The primary intent of this document is to (1) determine whether project implementation would result in potentially significant impacts to the environment, and (2) incorporate mitigation measures into the project design, as necessary, to eliminate or reduce the project's potentially significant impacts to a less than significant level.

In accordance with CEQA, projects that have the potential to result in either a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment must undergo analysis to disclose potential significant effects. The provisions of CEQA apply to California governmental agencies at all levels, including local agencies, regional agencies, state agencies, boards, commissions, and special districts. CEQA requires preparation of an IS for a discretionary project to determine the range of potential environmental impacts of that project and to define the scope of the environment review document. As specified in Section 15064(f) of the CEQA Guidelines, the lead agency may prepare an MND if, in the course of the IS analysis, it is recognized that the project may have a significant impact on the environment but that implementation of specific mitigation measures would reduce potentially significant impacts to a less than significant level. As the lead agency for the proposed project, the City of Watsonville (City) has the principal responsibility for conducting the CEQA environmental review to analyze the potential environmental effects associated with project implementation. During the review process, it was determined that potential impacts would be reduced to less than significant with the implementation of mitigation measures. The City has incorporated mitigation measures to reduce or eliminate any potentially significant project-related impacts. Therefore, an IS/MND has been prepared for the proposed project.

Note: The project has not been approved or denied. It is being reviewed for environmental impacts only. Approval of the project can take place only after the MND has been adopted.

This IS/MND is organized as follows:

- **Section 1: Project Description.** This section introduces the document and discusses the project description including location, setting, and specifics of the lead agency and contacts.
- **Section 2: Initial Study Checklist.** This section discusses the CEQA environmental topics and checklist questions, identifies the potential for impacts, and proposes mitigation measures to avoid these impacts.

- **Section 3: List of Preparers.** This section lists the organizations and individuals who were consulted and/or prepared this IS/MND.
- **Section 4: References.** This section presents a list of reference materials consulted during preparation of this IS/MND.

Public Review

The IS/MND will be circulated for a 30-day public review period from July 1, 2020, to July 30, 2020.

Comments regarding this IS/MND must be made in writing and submitted to Beau Kayser, 250 Main Street, Watsonville, CA 95076 or by email to beau.kayser@cityofwatsonville.org.

Comments should focus on the proposed finding that the project would not have a significant effect on the environment because revisions or mitigation measures have been made or agreed to by the project proponent. If the commenter believes that the project may have a significant environmental effect, it would be helpful for the commenter to identify the specific effect and explain why the effect would occur and why it would be significant.

Section 1 Project Description

1.1 Project Overview

The Roache Road Well Project (project) includes installation of a municipal water supply well to provide system redundancy for the City of Watsonville.

1.2 Project Location

The project is located at 154 Roache Road, approximately 100 feet east of the Airport Boulevard/Roache Road intersection, in the City of Watsonville, Santa Cruz County. The 2-acre site is owned by the Watsonville Municipal Airport and used by the City for temporary construction site storage. Refer to **Figures 1 and 2**.

The triangular project site is bound by Airport Boulevard to the north and Roache Road to the south. Surrounding land uses include the airport and industrial land uses to the north and residential land uses to the south and east (**Figure 2**).

1.3 Project Purpose and Background

The purpose of the project is to provide system redundancy. The City currently relies on several groundwater well pump stations for its potable water supply. Construction of the Roache Road groundwater well pump station would provide an estimated design flowrate 1,825 gallons per minute (gpm) of potable water toward the City's goal of adequate system redundancy in the event one or more existing groundwater well pump stations are off line.

1.4 Proposed Project Elements and Overall Site Plan

The project facilities or elements are described below, and the site plan is shown on **Figure 3**. All project structures would be constructed in accordance with California Building Code seismic design force standards, as required by Chapter 2, Section 8, Building Code within the City of Watsonville Municipal Code.

1.4.1 Well and Pump Station

The new well would be located in the southeast corner of the site. The well would be completed in the Aromas Formation, which begins at approximately 225 feet below ground surface (bgs) and extends to over 600 feet bgs. The well depth would be approximately 680 feet deep to screen enough material to obtain the appropriate amount of water.

The new well pump station would be a 45' long x 21' wide x 15' tall concrete masonry unit (CMU block building) with metal roof or similar enclosure, which would house the well pump, station piping, electrical lineup, and chlorine gas treatment system. The pump size would be approximately 250 horsepower and would operate approximately 12 hours per day on average when another potable water source or source(s) that are normally online with the same capacity

are offline. The pump station would be located approximately 100 feet from the nearest residence across Roache Road and would be screened from off-site views by the existing fencing and existing and proposed landscaping.

1.4.2 Emergency Generator

The new emergency diesel generator would serve power to the well pump station in the event of a power outage. The generator would be located approximately 40 feet northeast of the well pump station. The generator would be within a noise attenuation enclosure, either a CMU block building or similar enclosure, with a metal roof. It would be tested up to twice per month during daylight hours.

1.4.3 Treatment System

The new iron and manganese treatment system would be enclosed in a 46' long x 19' wide x 15' tall CMU block building with a metal roof or similar enclosure, located approximately 10 feet southeast of the well pump station. The treatment system would consist of approximately 16 vertical steel pressure vessels (approximately 10 feet tall and 4 feet wide each), associated piping, valves and automatic controls.

Manganese treatment has been included because water samples collected from three monitoring wells in the project vicinity exceeded the maximum contaminant level (MCL). However, it is possible that the combination of the development techniques and very large discharge volumes that would be utilized in the production well on the project site would remove residual geologic formation materials that may be causing the elevated manganese concentrations (Luhdorff & Scalmanini Consulting Engineers 2019). The need for the treatment system would be confirmed once the production well is drilled and sampled, and the treatment system would not be constructed if it is not needed.

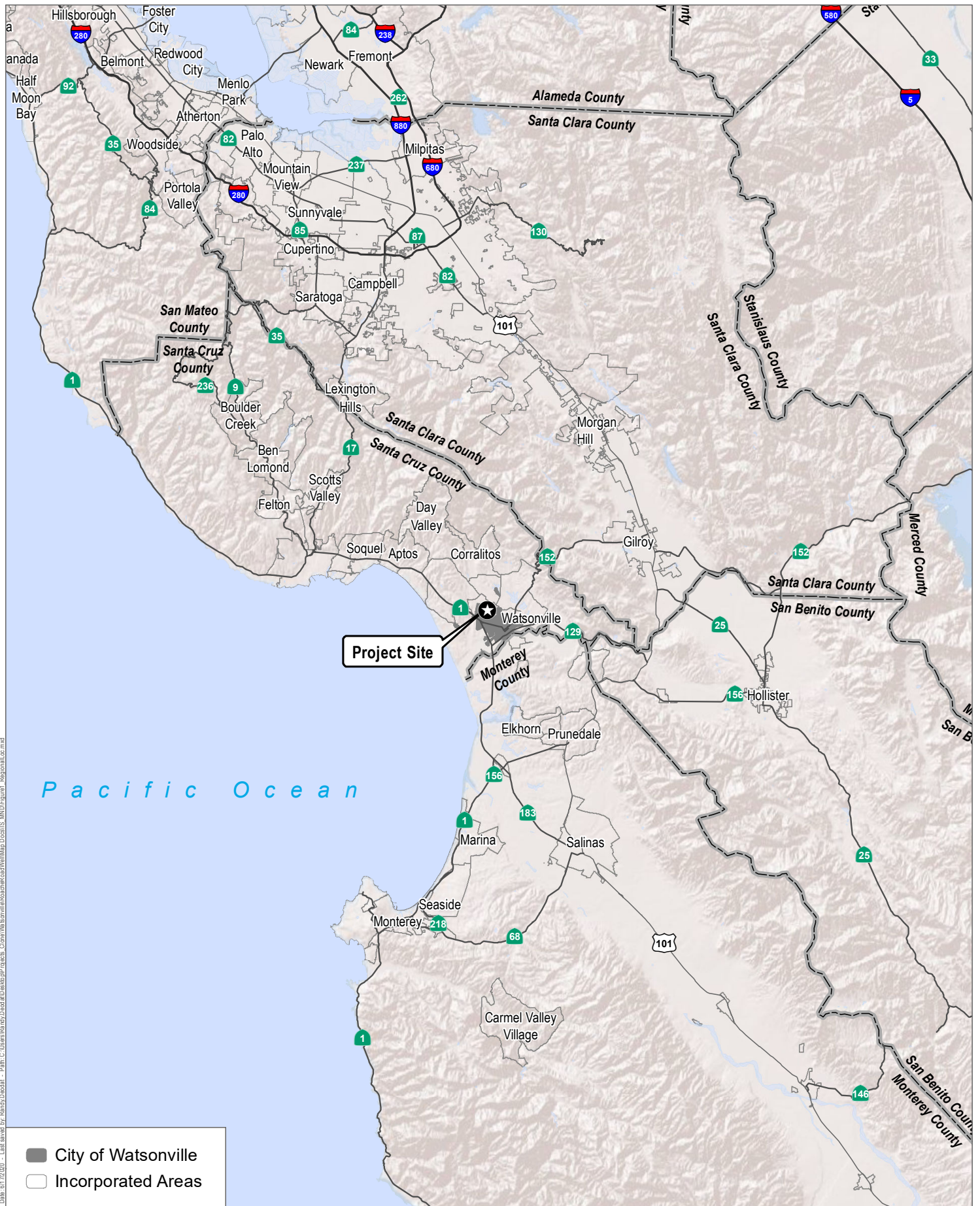
1.4.4 Other Improvements

Power and Lighting

All equipment (well pump, site lighting, instrumentation and appurtenances) would be primarily powered by electricity provided to the site by Pacific Gas & Electric (PG&E).

There would be ceiling lighting in the interior of the buildings, wall-mounted lighting on the exterior of facility buildings, and a few yard lights for security and visibility at night as needed to access the site. The exterior lighting would be directed downward to reduce light and glare on surrounding residences.

During the overnight well drilling construction phase, a temporary mobile light tower would be used to illuminate the work area. The lights, including those on the drill rig mast, would be pointed inward and down to the work area.



Source: ESRI 2020.



Harris & Associates



Figure 1
Regional Location
Roache Road Well Project

This page intentionally left blank.



This page intentionally left blank.

Path: C:\Users\Randy.Doodat\Desktop\Projects - Clone\Fenita\Map Docs\EIR\4.0 Environmental Impact Analysis



Source: Luhdorff & Scalmanini 2020.

This page intentionally left blank.

Water Connection

The well pump station facilities would connect to the City's existing water distribution system in Roache Road. The existing 6-inch-diameter cast-iron pipe water main would be replaced with a new 8-inch-diameter ductile iron water main, extending from the Roache Road/Airport Boulevard intersection eastward approximately 600 linear feet. The cast-iron water main is being replaced because it is old and beyond its service life, and to accommodate increased flow if the well is employed when another well is not operating. Additional hydraulic modeling will be conducted to confirm the 8-inch replacement pipeline in Roache Road is sufficient to carry the additional water flow. If it is not, the connection pipeline from the well pump station would extend to the existing water main in Airport Boulevard, as shown on Figure 3, instead of the pipeline in Roache Road.

Sewer and Stormwater Connections

The well pump station site would be connected to the City's existing sewer and stormwater system, with two new pipelines from the well pump station site to the existing utility mainlines in Roache Road.

The sewer line would convey the backwash water from the pump and treatment facilities to the sewer system, so the City can beneficially reuse the treated sewer water (recycled water), rather than discharging to the storm drain system where it cannot be reused. The storm drain line would allow the City to divert water to the storm drain if desired.

After repaving/regrading, any stormwater (runoff from precipitation) would be routed to the existing drainage ditch on the west side of the site (same shoulder area to be improved) to the existing storm drain inlet at the corner of Airport Boulevard and Roache Road, similar to existing conditions.

Telecommunications Conduit

The project also includes installation of approximately 600 feet of fiber optic conduit, which is required for communication and remote facility operation and monitoring (alarms and controls), along the northwest border of the parcel approximately 5 feet from the existing fence line.

Roache Road Shoulder Improvements and Landscaping

The Roache Road shoulder area on the north side would be improved with compacted Class II aggregate base. The sidewalk from Airport Boulevard would be extended approximately 10 feet down Roache Road. Select vegetation on the slope between the pump station site and Roache Road would be removed and replaced with native, non-invasive, drought tolerant vegetation.

1.5 Project Construction

In general, project construction involves, demolition, excavation grading, well drilling, building construction, paving, and landscaping.

1.5.1 Construction Phases, Schedule and Hours

Project construction is planned to occur in two phases: (1) The production well would be installed and tested during a 6-month period, planned from September 2020 to February 2021, and (2) the pump station and other project elements would be constructed during a 10-month time frame, planned from February 2021 to November 2021.

Construction activities would occur during daylight hours, limited to between the hours of 7:00 a.m. and 7:00 p.m., Monday through Saturday, and 8:00 a.m. and 6:00 p.m. on Sundays. During well installation, construction would occur 24 hours per day, 7 days a week, for approximately 10 days.

1.5.2 Earthwork

Project demolition would consist of the removal of existing pavement, concrete slabs, and fencing in disrepair from the well pump station area. There would be excavation, grading, concrete mixing and pouring for the concrete pads for the three small structures. Dirt and pavement would be excavated for installation of underground piping, pipeline connection, and electrical conduit, as well as the telecommunications conduit. Pavement would also be removed and replaced along Roache Road as part of the water line replacement work, shoulder improvements, and utility tie-ins. Utility line work would include trenching approximately 4 feet deep for the water, storm drain, and telecommunications lines and up to 15 feet deep for the sewer line. The disturbance area, import and export calculations, and new impervious surface are shown in **Table 1**.

Table 1. Construction Estimates for Earthwork

Project Facility	Earthwork Estimates
Phase 1	
Well	16 sf
Import	48 cy
Export	77 cy (soil from borehole)
Total Disturbance Area	16 sf
Phase 2	
Pump Station	1,500 sf
Water Pipeline	3,000 sf
Shoulder/Landscaping	10,000 sf
Telecomm	3,000 sf
Import	300 cy (soil, AB, sand, etc.)
Export	450 cy (soil, pavement, concrete, vegetation)
Total Disturbance Area	36,000 sf (0.83 acre)
Total New Impervious Surface	9,550 sf (rounded from 9,549 sf)
On-site paving between new facilities	7,500 sf
Well Pump Station (45'x 21')	945 sf
Treatment System (46'x 19')	874 sf
Generator Pad (10' x 20')	200 sf
Sidewalk extension (10' x 3')	30 sf

Notes: AB = aggregate base, cy = cubic yards, sf = square feet, ' = feet

Construction Equipment and Staging

For Phase 1, the equipment required for well installation and testing includes a 45- to 50-foot-tall drill rig, backhoe, light tower, generator, compressor, welders, pumps, temporary diesel pump motor, water truck, and dump truck.

For Phase 2, the equipment required for pump station construction and other project elements includes, but is not limited to, excavators, front loaders, backhoes, sweepers, dump trucks, lifts, pavement saw cutters, compaction rollers, and a pump rig.

Pile driving is not anticipated; however, vibratory equipment will be used to consolidate concrete during pours and compact subgrade for site grading and trench backfill.

All construction equipment and materials for both phases of construction would be staged on site.

Well and Pump Station Construction

The construction and testing of the new well would include the following steps and activities.

- Mobilization: transport workers, equipment, and materials to the project site; and set up equipment, erecting temporary sound walls
- Well drilling and construction: drill a 690-foot-deep borehole, install the 18-inch diameter steel and stainless steel well structure, and install gravel pack and cement seal in the borehole
- Well development: remove residual drilling fluids from the well by airlifting and pumping
- Well testing: pump the well with a temporary pump in order to determine final well yield
- Downhole testing: conduct various tests within the well to document condition of well structure
- Disinfection: place disinfecting agents into the well to prevent bacterial growth
- Demobilization: remove all equipment, temporary sound walls, material, and debris from site

Construction of the pump station facilities would include the following steps and activities.

- Mobilization: transport equipment, tools, and materials to the project site; establish a work area and storage area on site; and establish a field office (if needed).
- Well Pump Station: construct slab on grade and CMU block building with metal roofing, complete with ventilation louvers, HVAC system, doors and lighting to house well pump. The pump station building would house the well pedestal and aboveground and belowground water, sewer, electrical and storm drain utilities. The building would also house a gas chlorination disinfection system in a separate room with all appropriate monitoring and safety features. As described above, the new sewer, storm and water utility connections would be installed underground from the building to existing utility mainlines located in Roache Road; and the new fiber optic line would be installed underground along the northwest border of the parcel.
- Emergency Backup Generator: construct slab on grade and CMU block building or similar enclosure with metal roofing, doors and lighting to house an emergency diesel powered generator (located northeast of the pump station building). The generator fuel tank would be integrated into the subbase of the generator unit. A large rollup door would be installed on one side of the building for generator maintenance and/or future replacement.
- Treatment System: construct slab on grade and CMU block building with metal roofing, doors and lighting to house a skid-mounted, pre-manufactured, direct filtration iron and manganese treatment system (located south of the pump station building).
- Roache Road Shoulder Improvements: The existing shoulder on the south side of the pump station site will be re-graded to re-establish a drainage ditch along the roadway. The shoulder will be reconstructed with aggregate base extending approximately 4 feet

from the paved edge of the roadway. Mailboxes will be preserved and relocated if necessary across the street. The sloped area between the pump station site and shoulder will be re-landscaped, and existing vegetation will be preserved as recommended by landscape architect. A new irrigation system will be installed to establish any new plantings. The concrete sidewalk will also be extending an additional 10 feet (approximately) from the intersection of Roache Road and Airport Blvd.

Utility Installation

All utility installation and replacement work described above would be accomplished using traditional open trench construction methods within the existing project site and City right-of-way along Roache Road. Utility trench dimensions would typically be 3 feet wide and 4 feet deep for water, storm drain, and telecommunication lines and up to 15 feet deep for sewer lines.

Following pipeline installation, the trench would be backfilled with non-expansive fill material, and contours and upper service would be restored to prior condition with either pavement or topsoil, as appropriate depending on pipeline location.

1.6 Construction and Operation Best Management Practices

The City would ensure the following measures and best management practices (BMPs) are implemented and included in the construction specifications as appropriate.

Air Quality/Dust

The following BMPs shall be implemented in accordance with the Monterey Bay Air Resources District's recommendations for the control of short-term construction generated emissions.

- Water all active construction areas at least twice daily as necessary and indicated by soil and air conditions.
- Prohibit all grading during periods of high wind (over 15 miles per hour).
- Haul trucks shall maintain at least 2' 0" freeboard.
- Cover all trucks hauling soil, sand, and other loose materials.
- Plant native vegetative ground cover in disturbed areas as quickly as possible.
- Cover inactive storage piles.

Biological Resources

To avoid impacts to migratory birds that may forage, roost, or nest in the trees and landscaping outside the fencing of the project site, a preconstruction survey for nesting birds shall be conducted by a California Department of Fish and Wildlife (CDFW) qualified biologist within 7 days of project implementation when construction activities occur between February 1 and August 31.

Any active nests (nests with eggs or chicks) that are identified will be protected with a 50-foot buffer and protected until the chicks fledge and leave the nest.

Erosion Control/Water Quality

The following measures shall be implemented to control erosion, sediment and stormwater pollution. Although the disturbance is less than an acre, a stormwater protection program and plan shall be prepared.

- Storm drain inlets will be protected with sandbags or other comparable containment or filter berms and barriers.
- Sandbags and/or straw bales will be installed around the perimeter of construction and staging areas.
- All surplus asphalt and rubble will be removed from the project area and transported to the local landfill or approved disposal site.
- To the greatest extent possible, all exposed or disturbed areas within the construction area will be stabilized.
- Erosion control measures will be implemented and modified, repaired, or replaced as needed. These may include silt fences, weed-free straw bales, plywood, straw wattles, water check bars, and broadcast weed-free straw wherever silt laden water has the potential to leave the work site and enter the nearby drainages.

Hazardous Materials

Hazardous materials typically used on site during construction and operation would include gas, diesel, and lubricants for equipment. For operation, the treatment system requires use of chlorine gas contained in two 150-pound chlorine gas cylinders and well disinfectant Sodium Hypochlorite (bleach).

- The contractor shall comply with all government laws, rules and regulations concerning the use and storage of hazardous materials and the disposal of hazard waste.
- The pump station design shall include gas sensors connected to an audible alarm and beacon on the building exterior, as well as an emergency shutoff valve system installed on both gas cylinders.
- All hazardous material shall be stored and used in a safe manner and as directed by manufacturer recommendations.
- Any hazardous products, waste or empty containers used or generated shall be properly and legally transported and disposed, and shall not be poured down any drain or sewer nor disposed of in any trash container or dumpster.

Noise

Temporary sound barriers or walls, capable of reducing sound generated to meet the City's noise ordinance, shall be installed. The length of the sound attenuation structure shall be approximately 100 linear feet, and the height shall be a minimum of 16 feet.

Traffic Control

Construction activities would require temporary lane closures for approximately one week during pipeline installation. To minimize project effects on local traffic, the construction contractor shall:

- Prior to the start of construction activities that could disrupt traffic, notify adjacent property owners and residents, and emergency personnel of construction time frame and the location of planned lane closures;
- Prior to the start of construction, install signage that includes the dates for construction, contact information for the City liaison to answer project specific questions;
- Ensure that roadways within the project area remain open (i.e., one lane of traffic would be open, although it may have controlled access) to the greatest extent possible, and that lane closures would be safely and effectively managed with appropriate safety flags and signage; and
- Ensure that emergency vehicle access is retained at all times.

1.7 Regulatory Requirements, Permits, and Approvals

1.7.1 Project Design

The well and pump station facilities would be designed in accordance with the following standards.

- NSF – Standard 60, Drinking Water Treatment Chemicals
- NSF – Standard 61, Drinking Water System Components
- California Code of Regulations, Title 17, Division 1, State Water Resourced Control Board
- California Code of Regulations, Title 22, Division 4, Environmental Health
- City of Watsonville, Standard Engineering Specifications
- Santa Cruz County Environmental Health
- Santa Cruz City Fire Department
- Monterey Bay Air Resources District
- API – Standard 13-A, Drilling Fluid Materials, American Petroleum Institute
- API – Standard 13-B, Recommended Practice Standard Procedure for Field Testing Oil-Based Drilling Fluids
- ANSI/AWAA Standards including, but not limited to, A100-97, Standard for Water Wells, Standard for Water Wells, Section 4.7, Well Construction
- Water Well Standards, State of California; Bulletin 74-90 (Supplement to Bulletin 74-81) June 1991 or latest applicable edition/revision

1.7.2 Required Permits and Approvals

- State Water Resources Water Control Board – Drinking Water Supply Permit
- City of Watsonville – Building Permit
- City of Watsonville – Encroachment Permit
- California Air Resources Control Board Permit – Authority to Construct/Permit to Operate
- Santa Cruz County Health Services Agency, Environmental Health Services –
Drilling Permits

Section 2 Initial Study Checklist

The following discussion of potential environmental effects was completed in accordance with Section 15063 of the CEQA Guidelines to determine if the proposed project may have a significant effect on the environment.

2.1 Project Information

1. **Project title:** Roache Road Well Project
2. **Lead agency name and address:** City of Watsonville
Public Works and Utilities Department
250 Main Street
Watsonville, California 95076
3. **Contact person name, address, and phone number:** Beau Kayser, Water Operations Division
City of Watsonville Public Works and Utilities
Department
250 Main Street
Watsonville, California 95076
831-768-3193
4. **Project location:** 154 Roache Road, Watsonville, Santa Cruz
County, California (APN 015-151-04)
5. **Project sponsor's name and address:** City of Watsonville Public Works and Utilities
Department
250 Main Street
Watsonville, California 95076
6. **General plan designation:** Transportation, Communication & Utilities
7. **Zoning:** PF or "Public Facilities"
8. **Description of project:** Refer to Section 1, Project Description, of this IS/MND.

- | | |
|--|---|
| 9. Surrounding land uses and setting: | Refer to Section 1.2 of this IS/MND. |
| 10. Other public agencies whose approval is required: | Refer to Section 1.7 of this IS/MND. |
| 11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.? | No consultation has been requested. Refer to Section 2.5.18, Tribal Cultural Resources, of this IS/MND for details. |

2.2 Summary of Required Mitigation Measures

- CR-1: Stop Work in the Event of Unexpected Occurrence of Human Remains during Construction
- NOI-1: Vibration Best Management Practices

2.3 Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by the project, involving at least one impact that is a “Potentially Significant Impact” as indicated by the checklist on the following pages.

- | | | |
|--|---|--|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture and Forestry Resources | <input type="checkbox"/> Air Quality |
| <input type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input type="checkbox"/> Energy |
| <input type="checkbox"/> Geology and Soils | <input type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Hazards and Hazardous Materials |
| <input type="checkbox"/> Hydrology and Water Quality | <input type="checkbox"/> Land Use and Planning | <input type="checkbox"/> Mineral Resources |
| <input checked="" type="checkbox"/> Noise | <input type="checkbox"/> Population and Housing | <input type="checkbox"/> Public Services |
| <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation | <input type="checkbox"/> Tribal Cultural Resources |
| <input type="checkbox"/> Utilities and Service Systems | <input type="checkbox"/> Wildfire | <input checked="" type="checkbox"/> Mandatory Findings of Significance |

2.4 Lead Agency Determination

On the basis of this initial evaluation:

- ☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent (state), including implementation of the mitigation measures identified herein. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the proposed project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.



Signature

Beau Kayser, Water Operations Division, City of Watsonville

June 29, 2020

Date

2.5 Evaluation of Environmental Impacts

This section documents the screening process used to identify and focus on environmental impacts that could result from the project. The checklist portion of the IS begins below and includes explanations of each CEQA issue topic. CEQA requires that an explanation of all answers be provided along with this checklist, including a discussion of ways to mitigate any significant effects identified. The following terminology is used to describe the potential level of significance of impacts:

- **No Impact.** The analysis concludes that the project would not affect the particular resource in any way.
- **Less than Significant.** The analysis concludes that the project would not cause substantial adverse change to the environment without the incorporation of mitigation.
- **Less than Significant with Mitigation Incorporated.** The analysis concludes that it would not cause substantial adverse change to the environment with the inclusion of mitigation agreed upon by the applicant.
- **Potentially Significant.** The analysis concludes that the project could result a substantial adverse effect or significant effect on the environment, even if mitigation is incorporated. If there are one or more “Potentially Significant Impact” entries when the determination is made, an EIR is required.

2.5.1 Aesthetics

Except as provided in Public Resources Code Section 21099, would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Environmental Setting

The project site is located approximately 100 feet east of the Airport Boulevard/Roache Road intersection. The 2-acre site is zoned “public facilities” and is used by the City for temporary construction site storage. The site is heavily disturbed and is of poor visual character and quality. The site is surrounded by fencing and landscaping that blocks views of the site from adjacent public roadways. Refer to **Figures 2 and 3**.

The project site is not identified by the City as a scenic resource, is not located on or within view of a scenic vista, and is not located along or visible from a designated state scenic highway.

Impact Analysis

- a. **Would the project have a substantial adverse effect on a scenic vista?**
- b. **Would the project substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?**
- c. **Would the project, 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?**

No Impact. The proposed project includes the installation of three new small aboveground facilities (well pump station, iron and manganese treatment facility, and backup generator) on a heavily disturbed site with poor visual quality. All three facilities would be housed within a new CMU

block building with metal roof or similar structure, which would not be entirely visible from surrounding public roadways due to the existing fencing and landscaping. Additionally, the proposed project includes the installation of underground utility connections for water, sewer, stormwater, and fiber optic lines, which would not be visible after construction, and landscaping improvements along Roache Road, which would improve views from Roache Road. Electricity connections provided by PG&E could be pole mounted or pad mounted and would not be substantially visible from surrounding public roadways. Therefore, the project would have no effect on a scenic vista or scenic resources within a state scenic highway, and the project would not degrade the existing visual character or quality of public views of the site or surroundings, nor conflict with the applicable zoning designation or any regulations governing scenic qualities.

d. Would the project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

Less Than Significant Impact. The proposed well housing building would have ceiling lighting on the interior of the building, wall-mounted lighting on the exterior of the building, and a few lights throughout the project site for security and visibility at night. All permanent exterior lighting would be directed downward to reduce light leakage and glare into surrounding properties. All exterior lighting would be of a similar character and intensity as the surrounding residential development. Therefore, the project would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

During construction, the project would create temporary light for well installation. During the well drilling phase, construction activities would occur 24 hours per day, 7 days a week, for approximately 10 days. During this time, a temporary mobile light tower would be used to illuminate the work area. All lights, including the drill rig mast, would be pointed inward and down toward the work site only. The project involves the installation and use of temporary 16-foot tall sound barriers or walls, which would reduce light leakage from the drilling area. Therefore, the temporary light would have a less than significant impact on nighttime views in the area.

Mitigation Measures

None. The analysis completed for this section indicates that no significant impacts would result from the proposed project's implementation. As a result, no mitigation measures are required.

2.5.2 Agriculture and Forestry Resources

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. 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. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The project site is zoned “PF” or “public facilities” and is currently used by the City for temporary construction site storage. The site does not contain and is not adjacent to any farm or forest lands, and is not zoned for agricultural use(s) or under a Williamson Act contract.

Impact Analysis

- a. Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?
- b. Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?
- c. Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?
- d. Would the project result in the loss of forest land or conversion of forest land to non-forest use?
- e. Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

No Impact. The project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use; would not conflict with existing zoning for agricultural use or a Williamson Act contract. The project would not conflict with zoning for, or cause rezoning of, forest land, or timberland, and would not result in the loss or conversion of forestland to non-forest use(s). Furthermore, the project would not 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.

Mitigation Measures

None. The analysis completed for this section indicates that no significant impacts would result from the proposed project's implementation. As a result, no mitigation measures are required.

2.5.3 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 project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Environmental Setting

The project site is located within Watsonville, which is within the North Central Coast Air Basin (NCCAB), composed of Monterey, Santa Cruz, and San Benito Counties. The Monterey Bay Air Resources District (MBARD) consists of all three counties within the NCCAB; therefore, MBARD is responsible for air monitoring, permitting, enforcement, long-range air quality planning, regulatory development, education, and public information activities related to air pollution, as required by the California Clean Air Act (CCAA) and Amendments, and the Federal Clean Air Act (CAA) and Amendments.

The CAA of 1970 required the U.S. Environmental Protection Agency (USEPA) to establish National Ambient Air Quality Standards (NAAQS) with states retaining the option to adopt standards that are more stringent or to include other specific pollutants. The 1990 CAA Amendments require that each state have an air pollution control plan called the State Implementation Plan (SIP). The SIP includes strategies and control measures to attain the NAAQS by deadlines established by the CAA. The CAA Amendments dictate that states containing areas violating the NAAQS revise their SIPs to include extra control measures to reduce air pollution. The USEPA reviews the SIPs to determine whether the plans would conform to the 1990 CAA Amendments and achieve the air quality goals.

Criteria air pollutants are a group of common air pollutants regulated by the federal and state governments by means of ambient standards based on criteria regarding health and environmental effects of pollution. The USEPA has classified air basins (or portions thereof) as being in “attainment,” “nonattainment,” or “unclassified” for each criteria air pollutant, based on whether or not the NAAQS have been achieved. If an area is designated unclassified, it is because

inadequate air quality data were available as a basis for a nonattainment or attainment designation. The USEPA classifies the NCCAB as in attainment or unclassified for all pollutants with respect to federal air quality standards.

The State of California, under the CCAA, has established standards for criteria pollutants that are generally stricter than federal standards. The NCCAB is currently in nonattainment status for respirable particulate matter (PM₁₀), and transitional nonattainment status for ozone. An area is designated transitional nonattainment if, during a single calendar year, the state standard is not exceeded more than three times at any monitoring location within the district.

Impact Analysis

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

Less Than Significant Impact. In accordance with the CCAA, MBARD has developed the 2012-2015 Air Quality Management Plan (AQMP) for the Monterey Bay Region (MBARD 2017). The focus of the plan is achieving the 8-hour ozone standard in the region. The plan includes an updated air quality trends analysis; emissions inventory that includes the latest information on stationary, area, and mobile emission sources; and mobile source programs. Projects that are inconsistent with the AQMP would result in a significant cumulative impact related to ozone emissions. A project is consistent with the AQMP if it is consistent with the growth assumptions in the AQMP and, therefore, accommodated in the emissions inventories.

The proposed project does not contain a land development component. The purpose of the project is to provide water supply system redundancy, not to provide additional water supply, and would therefore not facilitate any growth beyond AQMP assumptions. Construction of the proposed project would generate temporary employment opportunities, but jobs created by this construction activity would likely be filled by the existing workforce in Watsonville or immediately surrounding areas. No direct growth inducement is expected to result from proposed project implementation.

No stationary sources would be constructed that would be long-term permanent sources of emissions. As further discussed below, the project would not result in an exceedance of numeric thresholds established by MBARD during construction or operation. Additionally, the proposed project would involve typical construction practices and general construction activity related emissions (i.e., temporary sources). According to Section 5.3 of the MBARD CEQA Air Quality Guidelines (2008), Criteria for Determining Construction Impacts, typical construction practices are accounted for in the emission inventories included in the air quality plans.

Therefore, the project would not conflict with or obstruct implementation of the applicable MBARD AQMP.

- b. Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard)?

Construction

Less Than Significant Impact. Construction activities associated with the project would result in temporary increases in air pollutant emissions. According to MBARD, construction activities (e.g., excavation, grading, on-site vehicles) which directly generate 82 pounds per day or more of PM₁₀ would have a significant impact on local air quality. The screening level for construction with the potential to exceed this threshold is disturbance of 2.2 acres or more per day. The proposed project disturbance area is less than one acre; therefore, the proposed project would not exceed the screening level for potential PM₁₀ impacts. However, potential construction emissions from the project have been quantified and are presented in **Table 2**. As shown in **Table 2**, the project is not estimated to generate PM₁₀ levels in exceedance of this threshold during either phase of construction.

MBARD does not identify quantitative thresholds for other criteria pollutants during construction. Construction projects using typical construction equipment such as dump trucks, scrapers, bulldozers, compactors and front-end loaders that temporarily emit precursors of ozone (i.e., volatile organic compound [VOC] or NO_x), are accommodated in the emission inventories of state- and federally required air plans and would not have a significant impact on the attainment and maintenance of ozone AAQS. However, a project that would use non-typical equipment would have the potential to result in a significant impact related to emissions of VOCs or NO_x. The proposed project would employ typical construction equipment. It would not require any non-typical construction equipment or techniques that have not been accounted for in the NCCAB emissions inventories. Thus, the proposed project would not result in a significant impact related to emissions of VOCs or NO_x.

Therefore, the project would not result in a cumulatively considerable net increase of criteria pollutant emissions during construction.

Table 2. Estimated Construction Daily Maximum Air Pollutant Emissions (lbs./day)

Construction Phase	VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Phase 1	2	16	14	<1	1	1
Phase 2	2	13	13	<1	1	1
MBARD Threshold	–	–	–	–	82	–
Significant Impact?	–	–	–	–	No	–

Source: CalEEMod Version 2016.3.2. Model output provided in **Appendix A**.

Definitions: VOC = Volatile Organic Compounds. NO_x = Oxides of Nitrogen. CO = Carbon Monoxide. SO_x = Sulfur oxides. PM₁₀ = Particulate matter 10 micrometers or less in diameter. PM_{2.5} = Particulate matter 2.5 micrometers or less in diameter.

Operation

Less Than Significant Impact. Following construction, operation of all equipment would be electric-powered and would not result in an increase in criteria pollutant emissions. A nominal increase in vehicle emissions is anticipated associated with maintenance of the proposed project. The new emergency generator would require testing twice per month. Due to the limited duration and infrequency of testing, testing of one new pump station generator would result in a nominal net increase in emissions. Landscape equipment would occasionally be used for maintenance. However, the plants would be low maintenance and drought tolerant; and once new landscaping is established, only periodic brush clearing, trimming, and weed abatement would be required. As such, the net increase in air pollution emissions from operation of the proposed project would be minimal and well below significance thresholds for all pollutants. Therefore, the project would not result in a cumulatively considerable net increase of criteria pollutant for which the project region is nonattainment.

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

MBARD defines sensitive receptors for CEQA purposes as any residence including private homes, condominiums, apartments, and living quarters; education resources such as preschools and kindergarten through grade twelve (k–12) schools; daycare centers; and health care facilities such as hospitals or retirement and nursing homes. Sensitive receptors also include long-term care hospitals, hospices, prisons, and dormitories or similar live-in housing.

Less Than Significant Impact. The nearest sensitive receptors to the project site are residences located along Roache Road, approximately 30 feet south of the proposed pipeline installations in Roache Road, and 100 feet east of the site parcel boundary (**Figure 2**). As shown in **Table 2**, construction emissions from the project would be minimal. Additionally, construction would be temporary, occurring in two phases and lasting less than two years. Phase 1 includes well installation and testing during a 6-month period, planned from September 2020 to February 2021. Phase 2 includes construction of the pump station and other project elements during a 10-month time frame, planned from February 2021 to November 2021.

Therefore, because project construction activities, such as the operation of heavy equipment, would be minimal, the proposed project is not anticipated to expose these receptors to significant short-term criteria pollutant emissions.

Following construction, the proposed project does include new sources of toxic air contaminants and, as discussed above, criteria air emissions that occur from operation of the project would be minimal. Additionally, because the project would result in a nominal increase in vehicle trips, implementation of the project would not contribute to any carbon monoxide hot spot. Therefore, the project operation would not expose sensitive receptors to substantial pollutant concentrations.

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

Less Than Significant Impact. Construction associated with the proposed project could result in minor amounts of odor compounds associated with diesel-heavy equipment exhaust. However, diesel equipment would not be operating together at one time, and construction near existing receptors would be temporary. Additionally, SO_x is the only criteria air pollutant with a strong, pungent odor (ATSDR 2015). As shown in **Table 2**, maximum construction emissions of SO_x would be less than 1 pound per day, which is well below the MBARD long-term threshold of 150 pounds per day.

CARB's Air Quality and Land Use Handbook (CARB 2005) includes a list of the most common sources of odor complaints received by local air districts. Typical sources of odor complaints include facilities such as sewage treatment plants, landfills, recycling facilities, petroleum refineries, and livestock operations. Project operation would include pumping and treating potable water and would not create new objectionable odors affecting a substantial number of people.

Therefore, neither project construction nor operation would result in other emissions, including those leading to odors that would adversely affect a substantial number of people.

Mitigation Measures

None. The analysis completed for this section indicates that no significant impacts would result from the proposed project's implementation. As a result, no mitigation measures are required.

2.5.4 Biological Resources

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Conflict with any applicable policies protecting biological resources?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other applicable habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Information in this section is based on a general habitat and natural resources assessment, including the potential for special-status species to occur on the project site, prepared by Harris & Associates. As part of this effort, professionally qualified staff completed the following tasks: 1) queried the CDFW's California Natural Diversity Database (CNDDDB) for special-status species occurrences within a 2-mile buffer around the project site (**Figure 4**) for special-status plant occurrences in the Watsonville West quadrangle (CDFW 2020); 2) obtained an official resource and species list from the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Conservation online planning tool (USFWS 2020); and 3) conducted a field survey of the project site on May 28, 2020. **Appendix B** includes the CNDDDB map and species table, USFWS IPaC resource list, and photos of the project site.

Environmental Setting

The project site is located within a developed area in Watsonville. The site is triangular shaped, with Roache Road and Airport Boulevard bordering the north and south edges of the property. Residential and industrial properties abut the project site to the east (**Figure 2**).

Across Airport Boulevard from the project site, the Watsonville Municipal Airport occupies 330 acres of runway, hangars, and accessory buildings interspersed with coastal terrace prairie habitat that is managed for both visual clearance for visual safety and to protect and enhance Santa Cruz tarplant (*Holocarpha macradenia*), Choris' popcorn flower (*Plagiobothrys chorisianus* var. *chorisianus*), and San Francisco popcorn flower (*Plagiobothrys diffusus*) (JGA 2007; USFWS 2014). Santa Cruz tarplant is federally listed as threatened and state listed as endangered. All three plants are listed by the California Native Plant Society as rare, threatened, or endangered in California and elsewhere; tarplant is "seriously threatened" in California, and San Francisco popcorn flower are "moderately threatened" in California.

Across Roache Road and behind residential properties, approximately 220 feet from the project site, the headwaters of Struve Slough begin to channel water, which flows approximately 1.3 miles downstream (south) into the complex Watsonville slough system, where the federally threatened California red-legged frog (*Rana draytonii*) and western pond turtle (*Emys marmorata*) (a state species of special concern) are known to occur. Other ponds and/or wetland areas known to support these species are also approximately 1.3 miles away; California red-legged frog have been found near Larkin Valley Road, and western pond turtle were recorded at Pinto Lake (to the north) and Crestview Park (to the east).

Habitats

Three habitats were identified on the project site during the field visit and are described below: developed, ruderal, and landscaped.

Developed

The project site is used by the City for temporary construction site storage for soil and rock stockpiles, pipes, fire hydrants, equipment, and heavy machinery. There is one portable building and one medium-sized (approximately 15 feet tall) ornamental tree on site. The area is used frequently as staff moves, dumps, and relocates supplies and stockpiles to other sites both on and off the property. As a result, the project site is highly disturbed (refer to photos 1–3 in **Appendix B**).



Source: California Department of Fish and Wildlife 2020.



Harris & Associates



0 750 1,500
Feet

Figure 4

Location of Santa Cruz Tarplant

Roache Road Well Project

This page intentionally left blank.

Ruderal

Ruderal habitats are unmaintained and dominated by weeds and other non-native species. Ruderal sites offer very limited habitat value for wildlife. The soils/substrate on the project site are compacted non-native fill, and where the project site is not regularly used, including the edges and between piles, weeds have established, including:

- Himalayan blackberry (*Rubus armeniacus*),
- Wild radish (*Raphanus raphanistrum*),
- English plantain (*Plantago lanceolata*),
- Cutleaf plantain (*Plantago coronopus*),
- Wild oats (*Avena fatua*),
- Ripgut brome (*Bromus diandrus*),
- Morning glory (*Calystegia macrostegia*),
- Sheep sorrel (*Rumex acetosella*), and
- Scarlet pimpernel (*Anagallis arvensis*).

Landscaped

Outside the fencing that encloses the project site, the existing landscaping plants provide a visual screen along Roache Road and Airport Boulevard. The area along Airport Boulevard is watered and maintained on a regular schedule and has mulch ground cover to reduce weed establishment. Species planted are typical of City landscaping, including purple leaf plum trees (*Prunus* spp.) and pink flowering Escallonia (*Escallonia x exoniensis 'Fradesii'*). Along Roache Road, the landscaping is not maintained and has a mix of landscape and weedy species, both native and non-native, including coast live oak (*Quercus agrifolia*), coyote bush (*Baccharis pilularis*), field mustard (*Brassica rapa* var. *rapa*), wild oats, Himalayan blackberry, honeysuckle (*Lonicera periclymenum*), and cheese weed (*Malva neglecta*) (refer to photo 3 in **Appendix B**). The proposed project includes upgrades to the landscaping along Roache Road, which necessitates the removal of weeds and some vegetation not originally planted by the City.

Wildlife

Common wildlife species that may inhabit or pass through the project site would be tolerant of human disturbance, and not impeded by chain link fencing. Birds were seen along the edges of the project site and on landscaping trees just off site, including house finch (*Haemorrhous mexicanus*), barn swallow (*Hirundo rustica*), mockingbird (*Mimus polyglottos*), California towhee (*Melospiza crissalis*), and Anna's hummingbird (*Calypte anna*). Although no natural resources occur on the project site, it is not unlikely that some mammals tolerant of high levels of human disturbance may travel through it, including raccoon (*Procyon lotor*), striped skunks (*Mephitis mephitis*), and Virginia opossum (*Didelphis virginiana*).

Although in a busy and noisy area, migratory birds may forage or roost in trees just outside the fencing on the project site. The trees are too small and canopy too closed for raptors to utilize the project site for hunting, roosting, or nesting.

There was no evidence of listed wildlife species, including California red-legged frog and western pond turtle, on or adjacent to the project site based on the field survey and database searches.

Impact Analysis

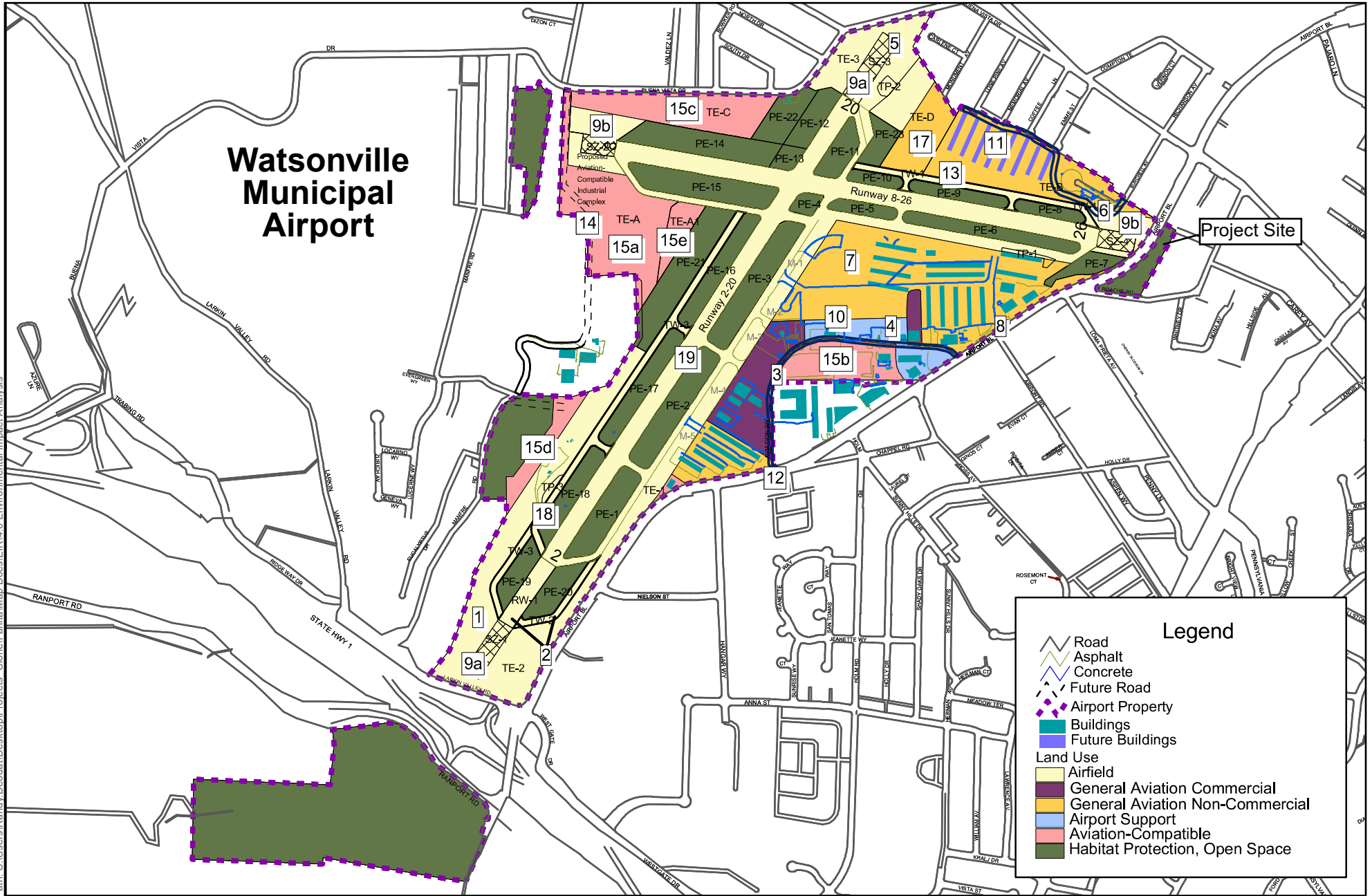
- a. **Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?**

Less Than Significant Impact. Results of the CNDDDB, USFWS IPaC, and CNPS search have identified several special-status species that occur in the surrounding areas (see **Appendix B** for results of these queries and analysis of the potential to occur on the project site). Due to the highly disturbed, urban nature of the project site, no habitat for any special-status species occurs on the property.

As discussed above and shown in **Appendix B**, the largest known population of Santa Cruz tarplant occurs on the main property of the Watsonville Municipal Airport within coastal terrace prairie habitat around the runways. The CNDDDB database occurrence that covers the population of tarplant at the airport ends at Airport Boulevard, along the north edge of the project site (**Figure 4**).

There are several properties adjacent to the main airport property, including the project site, that are owned by the Watsonville Municipal Airport and managed as “Habitat Protection/Open Space” (**Figure 5**). The purpose of this land use designation is to provide area for habitat protection and open space for use as a “clear zone,” providing protection of airspace for the runway (Watsonville Municipal Airport 2003). The project site falls into the latter category as no Santa Cruz tarplant management or monitoring occurs there (JGA 2007).

The Watsonville Airport monitors and manages its Santa Cruz tarplant population under the Mitigation Plan for Santa Cruz Tarplant and Coastal Terrace Prairie at the Watsonville Airport (JGA 2007). The overall goal of the mitigation program is to compensate for the loss of Santa Cruz tarplant and coastal terrace prairie resulting from planned airport improvements, with the expected outcome resulting in a net increase in Santa Cruz tarplant and Choris’ popcorn flower. Annual maintenance includes a mowing regime designed to promote the spread of tarplant by adjusting blade height and timing of maintenance mowing to minimize impacts to the tarplant. In the fall of 1995, Watsonville Airport staff also began a program specifically to establish Santa Cruz tarplant in suitable habitat (coastal terrace prairie) on the airport where it did not previously occur. None of these management activities occurs on the proposed project site or would be adversely impacted by the proposed project.



Harris & Associates



Figure 5

Airport Land Use Plan

Roache Road Well Project

This page intentionally left blank.

Although Santa Cruz tarplant thrives in a disturbance regime, the current conditions and urban nature of the property are likely too disturbed to support this species, as the site lacks coastal terrace prairie habitat and other conditions that are present where this species does occur. It is therefore highly unlikely that this species occurs on the project site.

No aquatic features are present on or adjacent to the project site. Although the headwaters of Struve Slough are within 220 feet of the project site, the residential properties, roads, and urban nature of the area make it highly unlikely that any wildlife from this natural drainage to move into or through the site. There are no ground squirrel holes or other features that would provide aestivation or refuge sites for California red-legged frog.

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

No Impact. Due to the highly disturbed nature of the project area, no natural habitats occur on the project site.

c. Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No Impact. There are no wetlands on the project site.

d. Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

e. Would the project conflict with any applicable policies protecting biological resources?

Less Than Significant Impact. Due to the highly disturbed nature of the project area, no natural habitats occur on the project site. However, there are some ornamental and native trees that occur on the site (one) and just outside the fence line that could be used by migratory birds for foraging, roosting, or nesting. As described in Section 1.6, Construction and Operation Best Management Practices, preconstruction surveys for nesting birds would be conducted for construction activities occurring between February 1 and August 31. This would avoid and minimize impacts to migratory birds protected under the Federal Migratory Bird Treaty Act from the removal of vegetation for landscaping or from noise generated by equipment used during project implementation.

f. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other applicable habitat conservation plan?

No Impact. There is no Habitat Conservation Plan or Natural Community Conservation Plan that applies to the proposed project site.

Mitigation Measures

None. The analysis completed for this section indicates that no significant impacts would result from the proposed project's implementation. As a result, no mitigation measures are required.

2.5.5 Cultural Resources

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Disturb any human remains, including those interred outside of dedicated cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Information in this section is based on the Phase I Archaeological Investigations for the Roache Road Municipal Well and Pump Station Project, prepared by Albion Environmental (Albion 2020). As part of this effort, professionally qualified staff from Albion completed the following tasks: 1) background historical research, including archival maps and photos and a records search at the Northwest Information Center, extending to a quarter mile beyond the Project Area of Potential Effect (APE); 2) pedestrian field survey of the entire APE to identify any previously unidentified archaeological resources; 3) identifying and determining potential effects on archaeological resources within the APE and making recommendations on how to address any effects. The APE is shown on **Figure 2**.

Environmental Setting

The Northwest Information Center records search revealed no known cultural resources within the APE but nine within a quarter-mile radius. The nine cultural resources recorded within 0.25 mile of the APE are all historic commercial or residential structures, or clusters of structures, dating from the late nineteenth through mid-twentieth centuries.

Background historical research revealed that the APE was once part of the Mexican Period Rancho Los Corralitos. Historic maps show that by the 1880s the project vicinity had been divided into private parcels with Roache Road in place, and that over the next several decades the parcel in which the APE is located passed through a series of private owners, although there is no indication that the APE itself was formally developed. By the early 1930s, aerial photographs show that much of the APE was located within an agricultural orchard and by the 1940s was in an empty field adjacent to the newly constructed Watsonville Municipal Airport. By 1975, Airport Boulevard had been built on the west side of the APE and the City's temporary construction site storage was within the APE itself.

The results of Albion's pedestrian survey turned up no evidence of precontact Native American or historic period cultural resources within the Project APE. The APE is heavily disturbed with development, pavement, and landscaping. There is little evidence for undisturbed terrain or native soils, and most of the visible ground surface comprises modern fill material. There are no physical traces of Roache Road as it was in the nineteenth century or early twentieth century orchard. Even if buried remains of these landscape features existed, they lack potential to contribute to research questions that cannot be addressed using historical sources.

Overall, given the lack of substantial human occupation visible in historic imagery from the nineteenth and early twentieth centuries, heavy disturbance by modern development, the lack of previously recorded cultural resources within the APE, and the lack of archaeological deposits previously identified within a quarter-mile radius, the potential for buried archaeological deposits in the Project APE is very low. Albion, therefore, concludes that no historical resources would be affected by the project and recommends no further archaeological measures prior to or during construction.

Impact Analysis

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

Less Than Significant Impact. As described above in the summary of the Phase 1 report prepared by Albion, the potential for buried archaeological deposits in the Project APE is very low given the lack of substantial human occupation visible in historic imagery from the nineteenth and early twentieth centuries, heavy disturbance by modern development, the lack of previously recorded cultural resources within the APE, and the lack of archaeological deposits previously identified within a quarter-mile radius. Further, there are no historical structures on or adjacent to the site that could be adversely impacted by the project. Therefore, Albion concludes that no historical or archaeological resources would be affected by the Project and recommends no further archaeological measures prior to or during construction.

- c. **Would the project disturb any human remains, including those interred outside of dedicated cemeteries?**

Less Than Significant with Mitigation Incorporated. The potential for the project to disturb any human remains is low for the reasons described above. Although it is unlikely, there is a possibility of the unanticipated and accidental discovery of human remains during ground disturbing project-related activities. This impact would be potentially significant, but could be reduced to a less than significant level with implementation of Mitigation Measure CR-1: Stop Work in the Event of Unexpected Occurrence of Human Remains during Construction.

Mitigation Measures

The following mitigation is required as part of the project to ensure that potential disturbance to human remains is mitigated to a level that is less than significant.

CR-1: Stop Work in the Event of Unexpected Occurrence of Human Remains during Construction. If human remains and associated/or unassociated funerary objects are discovered during soil-disturbing activities, construction crews will stop work and immediately notify the Santa Cruz County Coroner and a qualified archaeologist, in accordance with applicable State laws. In the event that the Coroner determines that the human remains are Native American, the County or City will notify the Native American Heritage Commission according to the requirements in California Public Resources Code, Section 5097.98. The Native American Heritage Commission will appoint a Most Likely Descendant. A qualified archaeologist, County or City, and Most Likely Descendant will make all reasonable efforts to develop an agreement for the treatment, with appropriate dignity, of any human remains and associated or unassociated funerary objects (CEQA Guidelines, Section 15064.5[d]). The agreement will take into consideration the appropriate preservation measures, with the preference to preserve all resources intact and in place. The City shall work with engineers to excavate, remove, record, analyze, take custody of, and finally respectfully dispose of the human remains and associated or unassociated funerary objects. The California Public Resources Code allows 48 hours to reach agreement on these matters.

2.5.6 Energy

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Environmental Setting

Electricity and natural gas service for Watsonville are currently provided by Monterey Bay Community Power (MBCP) and &E. MBCP allows communities to buy clean-source electric power, while retaining PG&E's role in maintaining power lines and providing customer service (MBCP 2018). Electricity comes from solar, wind and hydroelectric generation (MBCP 2018). PG&E continues to provide natural gas service.

Impact Analysis

- a. **Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?**

Less Than Significant Impact. Construction of the proposed project would result in an incremental increase in the consumption of energy resources during construction due to on-site use of construction equipment and vehicle and truck trips. All project construction equipment would be required to comply with the CARB emissions requirements for construction equipment, which includes measures to reduce fuel-consumption, such as imposing limits on idling and requiring older engines and equipment to be retired, replaced, or repowered. As a result, impacts associated with the small temporary increase in consumption of fuel during construction are expected to be less than significant.

Following construction, operation of all equipment (well pump, site lighting, instrumentation and appurtenances) would be primarily powered by the electric grid. Equipment would only operate as necessary to provide adequate system redundancy in the event that one or more existing groundwater well pump stations are off line. Emergency generators would require consumption of diesel fuel only in an emergency or during necessary maintenance testing.

Therefore, the project would not result in wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation.

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

Less Than Significant Impact. The applicable plan for the project area related to renewable energy or energy efficiency is the Watsonville Climate Action Plan (CAP). In 2015, Watsonville adopted the CAP to assist Watsonville in preparing for the potential impacts of climate change and protect public health, safety and critical infrastructure. The CAP identifies and prioritizes policies and programs that both reduce GHG emissions and increase the ability of the City to adapt to future climate impacts. Based on state guidance, the CAP establishes the goals of reducing GHG emissions by 15 percent from 2005 levels to meet the AB 32 target and 25 percent below 2005 emissions by 2030 to continue on the trajectory to reach the 2050 reduction target. The CAP includes a list of actions for the City to implement to reduce GHG emissions, including investment in renewable energy and programs to increase energy efficiency. The CAP does not include specific requirements or emissions reduction targets for individual projects.

The project proposes potable water infrastructure. Proposed equipment would be powered by the electric grid. Service would be provided through MBCP, which provides clean-source power, consistent with the renewable energy goals of the CAP. Therefore, the project would not conflict with or obstruct any state or local plan for renewable energy or energy efficiency.

Mitigation Measures

None. The analysis completed for this section indicates that no significant impacts would result from the proposed project's implementation. As a result, no mitigation measures are required.

2.5.7 Geology and Soils

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii. Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv. Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

Santa Cruz County is a tectonically active fault zone due to the presence of multiple faults that transect the entire county. The San Andreas Fault, the largest of these faults, is considered the most active fault in the area, and is bordered to the south by the less active Zayante Fault. Both faults have the potential to generate moderate to severe ground shaking from an earthquake event, which are expected to occur in the future. The largest earthquake in recent history was the Loma Prieta earthquake (magnitude 7.1) of 1989 that resulted in substantial earth movement throughout the Watsonville area.

The project area is composed of three geologic units; Fluvial Basin Deposits, Aromas Sands, and the Purisima Formation, as mapped on the U.S. Geological Survey Geologic Map of Santa Cruz County (Brabb et al. 1997). These terrace deposits are composed of semi-consolidated and moderately sorted sand, silty clay, and gravel, and can be up to 100 feet below ground surface (bgs). The Aromas Sands are composed of eolian and fluvial sand, silt, clay and gravels, and is the major groundwater producing geologic unit (aquifer) in the region. The sands extend from approximately 225 feet to 600 feet bgs. The Purisima Formation is composed of sandy silts and underlies the project area at 650 feet to 1,000 feet bgs. The silty-sandy nature of terrace deposits and the Aromas Sands makes the project area highly susceptible to intense impacts from changes in the natural environment. This could include seismic-related ground failure, lateral spreading, landslides, and liquefaction.

Impact Analysis

- a. **Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:**
 - i. **Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.**
 - ii. **Strong seismic ground shaking?**

Less Than Significant Impact. The project site is located outside of the limits of the State Alquist-Priolo Special Studies Zone or any County-mapped fault zone (County of Santa Cruz 2020; California Division of Mines and Geology 2001). However, the project site is located approximately 6 mile(s) west of the San Andreas Fault zone, and approximately 4 mile(s) west of the Zayante Fault zone. In addition to these major fault zones, the Sargent, Berrocal, and Monterey Bay-Tularcitos Faults are located approximately 8, 9, and 11 miles from the project site, respectively. Due to the proximity of the project site to active and potentially active faults, the project site would be subject to high intensity ground shaking during the lifetime of the project. The project would be subject to the California Building Code seismic design force standards, as required by Chapter 2, Section 8, Building Code within the City of Watsonville Municipal Code. These requirements would ensure the stability of all proposed project structures based on the geologic features present within the project area. Therefore, the impact would be less than significant.

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

Less Than Significant Impact. The project site is mapped as an area with very high susceptibility for liquefaction, as shown on the Santa Cruz County GIS Hazard Map (County of Santa Cruz 2020). The terrace deposits that underlay the project area are semi-consolidated; this means that when the silty clay soils become inundated with surface water, they will behave as a liquid, instead of draining into the ground. Liquefaction can induce lateral spreading when a liquefied soil mass

fails on an inclined slope, making the project area highly susceptible to lateral spreading. Because the project area is located on a topographically low area with a slope grade of 15 percent, the project area is susceptible to moderate lateral spreading.

The project site is shown to be underlain with expansive soils on the Santa Cruz County GIS Hazard map (County of Santa Cruz 2020). Expansive soils are composed of expanding clays, which are consistent with both the terrace deposits and Aromas Sands that underlay the project area. When expansive clay soils become saturated with water, they expand, and then contract when conditions are dry. Thus, the project site is susceptible to shrink/swell potential throughout the year, particularly during the rainy season from October through May.

In order to offset the potential impacts that may occur to the proposed project structures through the presence of geologic features that are susceptible to liquefaction, including expansive soils, the project would be subject to the California Building Code seismic design force standards, as required by Chapter 2, Section 8, Building Code, within the City of Watsonville Municipal Code. These requirements would ensure the stability of all proposed project structures based on the geologic features present within the project area.

iv. Landslides

Less Than Significant Impact. Landslide potential is mapped on the Cooper-Clark Landslide Map on the Santa Cruz County GIS Hazard map (County of Santa Cruz 2020). The closest landslide is approximately 6 miles from the project site, within the San Andreas Fault Zone. The project site and surrounding topography are not mapped with the potential to support a landslide. The nearly flat topography (15 percent graded slope) would not yield a potential pathway for a slope to fail during a seismic event or over saturated surface runoff.

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

Less Than Significant Impact. The project area is topographically flat, with a maximum 15 percent grade in slope. There is some potential for surface soil erosion to occur during project construction activities due to the presence of terrace deposits that have a moderate potential for erosion (Brabb et al. 1997). However, the flat nature of the project area would minimize the potential for erosion related impacts. Furthermore, the project would implement a number of BMPs, as described in Section 1.6, Construction and Operation Best Management Practices, to avoid the loss of topsoil and minimize soil erosion. These would include:

- Surplus asphalt and rubble would be removed from the project area and transported to the local landfill;
- All disturbed areas within the area would be stabilized; and,
- Erosion control measures would be implemented, modified and replaced.

- c. **Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?**

Less Than Significant Impact. As discussed above, the project site is located on sand and clay-rich terrace deposits, resulting in the area being sensitive to potential collapse, lateral spreading, subsidence, liquefaction and landslides. In order to offset the potential impacts that may result through the implementation of the project, all proposed project structures would be constructed in accordance with California Building Code seismic design force standards, as required by Chapter 2, Section 8, Building Code, within the City of Watsonville Municipal Code. Furthermore, as described in Section 1.6, Construction and Operation Best Management Practices, a number of BMPs would be implemented. These requirements would ensure the stability of all proposed project structures based on the geologic features present within the project site, and would minimize the potential for erosion and sedimentation from the project site.

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

Less Than Significant Impact. According to the Santa Cruz County GIS Hazard Map (County of Santa Cruz 2020), the project site is underlain with expansive soils and by a mixture of silty clay in both the terrace deposits and the Aromas Formation, which is highly expansive when exposed to water. Expansive soils expand during the wet season and contract during the dry season. Given the project site's direct southern proximity to the Struve Slough and nearby Corralitos Creek, the soils would be subject to shrink/swell potential based on seasonal moisture fluctuations. In order to offset the potential impacts that may result through the implementation of the project, all proposed project structures would be constructed in accordance with California Building Code seismic design force standards, as required by Chapter 2, Section 8, Building Code, within the City of Watsonville Municipal Code. These requirements would ensure the stability of all proposed project structures based on the expansive nature of the soils that underlay the project area.

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

No Impact. The proposed project does not include the use of septic tanks or alternative wastewater disposal systems. The well pump station would be connected to the City's existing sewer system and storm system to convey the backwash water from the pump and treatment facilities so the City can beneficially reuse the treated sewer water (recycled water), rather than discharging to the storm drain system where it cannot be reused.

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

Less Than Significant Impact. Implementation of the project would involve ground disturbing construction-related activities. Areas that are considered sensitive for paleontological resources have been mapped through the Santa Cruz County GIS Database (County of Santa Cruz 2020). This map was created through extensive scientific literature review along with a review of local museum records. This information was cross analyzed with local geography to identify if any paleontological and geologic resources are known or likely to exist within the County. This process identified seven areas in northern Santa Cruz County that have been identified as supporting rare or unique paleontological or geologic resources. Although paleontological resources are contained within underlying soil layers and geologic deposits, the project site is located in southern Santa Cruz County and is not within a known area that supports either paleontological or geologic resources. Thus, potential impacts that may occur to paleontological or geologic features as a result of ground disturbance from construction activities would be minimal and considered less than significant.

Mitigation Measures

None. The analysis completed for this section indicates that no significant impacts would result from the proposed project's implementation. As a result, no mitigation measures are required.

2.5.8 Greenhouse Gas Emissions

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Environmental Setting

The primary greenhouse gas (GHG) emitted by human activities is carbon dioxide (CO₂). CO₂ enters the atmosphere through the burning of fossil fuels, solid waste, trees, and wood products and because of other chemical reactions, such as those produced through the manufacturing of cement. Globally, the largest source of CO₂ emissions is the combustion of fossil fuels in power plants, automobiles, industrial facilities, and other similar sources (USEPA 2020). Methane (CH₄) is emitted from natural and human-related sources, including fossil fuel production, animal husbandry, rice cultivation, biomass burning, and waste management (USEPA 2020). Nitrous oxide (N₂O) is emitted during agricultural and industrial activities and combustion of fossil fuels and solid waste (USEPA 2020). Hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride are synthetic, powerful GHGs that are emitted from a variety of industrial processes and the production of chlorodifluoromethane. Construction or operation of the proposed project would not include any industrial processes, and chlorodifluoromethane has been mostly phased out of use in the United States, with the exception of feedstock production (USEPA 2020); therefore, these GHGs are not discussed further in this report.

Individual GHGs have varying heat-trapping properties and atmospheric lifetimes. The CO₂ equivalent (CO₂e) is a consistent method for comparing GHG emissions because it normalizes various GHG emissions to a consistent measure. Each GHG is compared to CO₂ with respect to its ability to trap infrared radiation, its atmospheric lifetime, and its chemical structure. CH₄ is a GHG that is 25 times more potent than CO₂; therefore, 1 metric ton (MT) of CH₄ is equal to 25 metric tons of carbon dioxide equivalent (MTCO₂e). One MT of N₂O is equal to 298 MT of CO₂e.

In September 2006, the California Legislature adopted Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. AB 32 focuses on reducing GHG emissions in California. AB 32 identifies a statewide goal of reducing the statewide level of GHG emissions to 1990 levels by 2020. Effective January 1, 2017, Senate Bill 32 requires California to reduce its statewide GHG emissions by the year 2030 so that emissions are 40 percent below those that occurred in 1990.

Additionally, in 2005, California Governor Arnold Schwarzenegger announced, through EO S-3-05, a statewide GHG emission reduction target of reducing GHG emissions to 80 percent below 1990 levels by 2050.

Impact Analysis

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

Less Than Significant Impact. Implementation of the project would generate GHG emissions by usage of fossil fuels during construction activities. The 6-month construction period for Phase 1 would result in one-time total GHG emissions of 196 MTCO_{2e}. The 10-month construction period for Phase 2 would result in one-time total GHG emissions of 262 MTCO_{2e}, for total one-time project construction emission of 458 MTCO_{2e}. **Appendix A** provides detailed model output for project emissions.

Following construction, operation of all equipment would be electric-powered. Electricity would be carbon-free power provided by MBCP. A nominal increase in vehicle emissions is anticipated associated with maintenance of the proposed projects. One new emergency generator would require testing twice per month. Due to the limited duration and infrequency of testing, testing of one new pump station generator would result in a nominal net increase in GHG emissions. Landscape equipment would occasionally be used for maintenance. However, once new landscaping is established, only periodic brush clearing, trimming, and weed abatement would be required. As such, the net increase in GHG emissions from operation of the proposed project would be minimal.

Neither Watsonville nor MBARD have established a numeric threshold for screening impacts related to GHG emissions. Additionally, the Watsonville CAP is not a qualified CAP according to CEQA Guidelines, Section 15183.5. However, a threshold of 900 MTCO_{2e} (annual operational emissions) is recommended by the California Air Pollution Control Officers Association (CAPCOA) (CAPCOA 2008); and a threshold of 1,100 MTCO_{2e} (annual operational emissions) was adopted by neighboring air districts, including the Sacramento Metropolitan Air Quality Management District, as referenced in the 2017 Scoping Plan (CARB 2017) and the Bay Area Air Quality Management District (BAAQMD 2017). These “bright-line” thresholds address the state’s long-term emissions reduction goals by determining a screening level under which a project would not be considered to hinder the state’s ability to meet long-term goals. Bright-line thresholds are typically intended to screen out smaller projects with relatively minimal emissions so that the vast majority (typically 90 percent) of total future development would be subject to mitigation or project features that would reduce GHG emissions compared to business-as-usual emissions, and consistent with GHG reduction goals (CAPCOA 2008). Although these thresholds do not specifically address the contribution of emissions in Watsonville to the statewide goals or the goals

of the CAP, these screening levels provide a reasonable proxy for screening project impacts related to statewide GHG reduction goals.

The proposed project would be responsible for a temporary increase in GHG emissions during construction and minimal ongoing annual GHG emissions following construction. However, emissions would not exceed annual emissions thresholds recommended by CAPCOA or neighboring air districts for ongoing operational impacts. Therefore, the project would not result in a significant ongoing increase in annual GHG emissions.

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

Less Than Significant Impact. The Watsonville CAP and statewide emissions reduction goals are the applicable plans and regulations adopted for the purpose of reducing GHG emissions. As discussed above, the project would result in relatively minimal GHG emissions that would not be anticipated to conflict with the ability of the City or the state to meet emissions reduction goals (AB 32, S-3-05, and Senate Bill 32). As potable water infrastructure, the project does not propose any structures that would be subject to programs outlined in the CAP to reduce utility use. The project would require only minimal maintenance vehicle trips. As such, CAP measures related to reduction in vehicle miles traveled, primarily by increasing non-motorized travel, do not apply to the project. The proposed project would not conflict with the CAP or statewide emissions reduction goals.

Mitigation Measures

None. The analysis completed for this section indicates that no significant impacts would result from the proposed project's implementation. As a result, no mitigation measures are required.

2.5.9 Hazards and Hazardous Materials

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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, result in a safety hazard or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The 2-acre project site is owned by the Watsonville Municipal Airport, which is located on the north side of Airport Boulevard (**Figure 2**); zoned PF for public facilities use; and currently used by the City for temporary construction site storage of inert materials such as dirt and sand and vehicles used for the City's maintenance and construction projects. Although the vehicles contain fluids such as oil and gas, there are no fuel handling/storage facilities or other hazardous materials stored on site, in accordance with the Watsonville Municipal Airport Master Plan (Watsonville Municipal Airport 2003); and the site is not on a list of hazardous materials sites compiled pursuant to Government Code, Section 65962.5 a.

The project site is approximately 0.25 mile south of the Airport Boulevard/Freedom Boulevard intersection, which is identified in the City's General Plan as an evacuation route (City of

Watsonville 2005), and is over 2 miles away from fire hazard areas identified in the County's Operational Emergency Management Plan (County of Santa Cruz 2015).

Impact Analysis

- a. **Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?**
- b. **Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?**

Less Than Significant Impact. The project proposes the installation of a new well and pump station piping, treatment system, backup generator, and associated infrastructure including water, sewer, stormwater and telecommunication connections. The new treatment system, used to treat iron and manganese, would be enclosed in a CMU block building with a metal roof or similar structure. The treatment system is a skid-mounted, pre-manufactured, direct filtration which would consist of approximately 16 vertical steel pressure vessels (approximately 10 feet tall and 4 feet wide each), associated piping, valves and automatic controls. Potential hazardous materials used in treatment would be two 150-pound chlorine gas cylinders. Potential hazardous materials used during well disinfection activities, done to prevent bacterial growth, would involve Sodium Hypochlorite (bleach). Other hazardous materials typically used on site would include gas, diesel, and lubricants for equipment.

As described in Section 1.6, Construction and Operation Best Management Practices, the following measures would be implemented to ensure that the project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, nor through a reasonably foreseeable upset or accident involving the release of hazardous materials:

- The contractor shall comply with all government laws, rules and regulations concerning the use and storage of hazardous materials and the disposal of hazard waste.
- The pump station design shall include gas sensors connected to an audible alarm and beacon on the building exterior, as well as an emergency shutoff valve system installed on both gas cylinders.
- All hazardous material shall be stored and used in a safe manner and as directed by manufacturer recommendations.
- Any hazardous products, waste or empty containers used or generated shall be properly and legally transported and disposed, and shall not be poured down any drain or sewer nor disposed of in any trash container or dumpster.

c. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No Impact. The project area is located centrally between four different school sites, all of which are located further than one-quarter mile from the project site. The project area is approximately 0.35 mile from Freedom Elementary School; 0.63 mile from Pacific Coast Charter School; 0.90 mile from Calabasas Elementary School; and 0.90 mile from Rolling Hills Middle School.

d. Would the project 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?

No Impact. The project area is not included on a list of hazards material sites compiled pursuant to Government Code, Section 65962.5, and, as a result would not create a significant hazard to the public or environment. Based on the State Water Resources Control Board GeoTracker database and the State Department of Toxic Substances Control Envirostor database, there are no hazardous materials sites on, or within 1,000 feet of the project site (SWRCB 2020; SDTSC 2020).

e. Would the project 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, result in a safety hazard or excessive noise for people residing or working in the project area?

Less Than Significant Impact. The project site is located approximately 100 feet east of the Airport Boulevard/Roache Road intersection, directly across from the Watsonville Municipal Airport, which owns the project site and included it in the Watsonville Municipal Airport Master Plan (AMP) (Watsonville Municipal Airport 2003). Although the AMP is not a land use plan, the City adopted the AMP to “facilitate the orderly, flexible, and environmentally sensitive development of the Watsonville Municipal Airport,” similar to a capital improvement program. Exhibit 5 of the AMP shows the project site being designated “Habitat Protection, Open Space” (refer to **Figure 5**). Lands with this designation are intended to be preserved/maintained and set-aside for the preservation of Santa Cruz tarplant and/or used for runway clear space. Biological surveys were conducted in May 2020 to determine the presence of Santa Cruz tarplant within the project area and potential project impacts. As described in Section 2.5.4, Biological Resources, there is no evidence of tar plant at the project site. The project site is located in the “clear zone,” and land uses within the “clear zone” are generally limited to low density/intensity uses that involve few people, are noisy, and/or are not sensitive to noise. Prohibited uses include: fuel handling/storage facilities; uses that generate dust/smoke; uses with misleading lights/glare; uses that create electrical interference; uses that attract wildlife; residential uses; and uses that involve assemblages of people. The project would not involve any prohibited uses. With the absence of Santa Cruz tarplant and the well facility not being a prohibited use, the project is not inconsistent with the “Habitat Protection, Open Space” designation found within the AMP.

The project site is located within Safety Compatibility Zone 2 (Inner Approach/Departure Zone), as shown in Exhibit 13 of the AMP. The proposed well drilling, pump station, treatment system and other facilities would not violate the “average gross number of people per acre” limitation(s) within Zone 2. Operation of the well, treatment system and other facilities would be remotely monitored and would not involve more than 10–25 people/gross acre at any time during the construction or operation. Therefore, the project would not be inconsistent with the requirement and limitations for development(s) allowed within Zone 2.

The project site is located outside all areas of the Watsonville Municipal Airport Phasing Program (Table 39 and Exhibit 14) within the AMP. Therefore, implementation of the project would not prohibit or restrict anticipated future phased development of the AMP.

In 2016, the City of Watsonville prepared a Draft Airport Land Use Compatibility Plan (ALUCP) (City of Watsonville 2016), which has not been formally adopted. The purpose of the ALUCP is to promote compatibility between the airport and the surrounding land uses. Much of the ALUCP mimics the goals, policies and regulations found within the AMP. The proposed project is not inconsistent with the AMP and, therefore, is not inconsistent with the draft ALUCP.

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

Less Than Significant Impact. The project site is located at the Airport Boulevard/Roache Road intersection, located 0.25 mile south of the Airport Boulevard/Freedom Boulevard intersection, which is identified as an evacuation route for leaving the City in the City’s General Plan (City of Watsonville 2005). Airport Boulevard is an arterial roadway that would be used to evacuate the City. Construction activities would require temporary lane closures for approximately one week during pipeline installation, which could slow vehicular travel on Roache Road and possibly Airport Boulevard. As described in Section 1.6, Construction and Operation Best Management Practices under Traffic Control, the following measures would be implemented during construction to ensure emergency access.

- Prior to the start of construction activities that could disrupt traffic, notify adjacent property owners and residents, and emergency personnel of construction time frame and the location of planned lane closures.
- Prior to the start of construction, install signage that includes the dates for construction, contact information for the City liaison to answer project specific questions.
- Ensure that roadways within the project area remain open (i.e., one lane of traffic would be open, although it may have controlled access) to the greatest extent possible, and that lane closures would be safely and effectively managed with appropriate safety flags and signage.
- Ensure that emergency vehicle access is retained at all times.

Once construction is complete, operation of the project facilities would be contained on the project site, and there would be no structure, apparatus, or infrastructure in areas that would restrict or alter emergency response, evacuation or access.

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

No Impact. The project is surrounded by urban development and paved roadways, and is over 2 miles from fire hazard areas identified in the County's Operational Emergency Management Plan (County Santa Cruz 2015). Further, the proposed project would be operated remotely and require little on-site maintenance whereby workers are on site for extended periods of time. Therefore, implementation of the project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fire(s).

Mitigation Measures

None. The analysis completed for this section indicates that no significant impacts would result from the proposed project's implementation. As a result, no mitigation measures are required.

2.5.10 Hydrology and Water Quality

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i. Result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv. Impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The project site is located 500 feet northwest of Struve Slough, less than one mile south of Corralitos Creek, and is within the Pajaro Valley Groundwater Basin (PVGB), which extends from the Pacific Ocean to the base of the Gabilan mountain range in southern Santa Cruz County. The PVGB is under the jurisdiction of the Pajaro Valley Water Management Agency's Basin Management Plan Update (Basin Management Plan) that sets out guidelines to optimize and sustain groundwater supplies throughout the basin (Pajaro Valley Water Management Agency 2014).

Impact Analysis

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

Less Than Significant Impact. The project includes the installation of a new municipal drinking water well that was selected as the ideal well location for groundwater quality and supply according to the Well Siting Report that was prepared for the project area in June, 2018 (Luhdorff & Scalmanini Consulting Engineers 2018). The well is located in the water-bearing geologic units of the Aromas Sands and terrace deposits. The groundwater originating from these geologic units is generally good quality with low levels of total dissolved solids. The project area was tested in accordance with Title 22 drinking water analysis standards for general mineral, physical, drinking water metals and hexavalent chromium. The tested water met all primary and secondary standards for drinking water, apart from elevated levels of manganese.

Water samples collected from three monitoring wells in the project vicinity exceeded the MCL for manganese by two to six times the legal concentration. The elevated levels of manganese in monitoring wells compared to production wells completed in the same geologic formations is not unique to this project. The likely cause of elevated manganese concentrations is due to monitoring well development and limited maximum discharge rates, when compared to production wells, as determined by investigations undertaken to develop design recommendations for the project (Luhdorff & Scalmanini Consulting Engineers 2019). Prior to sampling a monitoring well, less than 1,000 gallons of water is pumped out to clear the well of contaminants, compared to 70,000 gallons pumped out in production wells. Production wells are developed to a much more rigorous standard than monitoring wells, to ensure a higher water volume yield throughout the lifetime of the well. The design report that was prepared for the project (Luhdorff & Scalmanini Consulting Engineers 2019) concluded that the combination of the development techniques that were proposed for the project and the very large discharge volumes that would be utilized within the production wells, would remove residual geologic formation materials that may be causing the elevated manganese concentrations. As described in Section 1.4.3, Treatment System, the manganese treatment system has been included as part of the proposed project in the event the manganese levels are not lowered to the MCL concentrations.

Another potential contaminant identified in the project Well Siting Report (Luhdorff & Scalmanini Consulting Engineers 2018) was hexavalent chromium. The water quality analysis confirmed that no hexavalent chromium existed within the project area.

Based on the results of the Well Siting Report and design recommendations that were developed for the project, the construction and operation of the proposed groundwater well would not violate any water quality standards or waste discharge requirements, or otherwise substantially degrade surface or groundwater quality. Additionally, throughout construction activities, erosion and

sedimentation BMPs would be implemented to protect water quality, as described in Section 1.6, Construction and Operation Best Management Practices (e.g., installation of straw waddles around storm drains, replanting bare soils). These BMPs have been developed to minimize the potential for polluted runoff to enter the stormwater drainage system, consistent with the Watsonville Municipal Code, Title 7, Chapter 6, Excavations, Grading, Filling, and Erosion Control. Therefore, this impact would be less than significant.

b. Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Less Than Significant Impact. The project site is located within the PVGB, an area that has groundwater resources that are significantly affected by seawater intrusion and agricultural overdraft. The Basin Management Plan establishes a set of guidelines to increase groundwater quality supply in the PVGB. Although installation of the new municipal groundwater well would result in the extraction of groundwater within the groundwater basin, the amount of groundwater that would be extracted is not at an amount that has been determined to significantly deplete the groundwater basin. The estimated design flowrate of the well is 1,825 gpm, while other production wells that occur within the Aromas Sands typically yield approximately 2,000 gpm. Furthermore, the well would only be utilized as a backup source of water for the City (i.e., system redundancy) and would not be in constant production. Thus, the new well would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management. Further, the project area is located outside of the coastal boundary of the groundwater basin that is affected by seawater intrusion, and therefore would not increase the salinity of the groundwater in the surrounding area.

c. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

- i. Result in substantial erosion or siltation on- or off-site?**
- ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or 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?**

Less Than Significant Impact. The project site is not located near a stream, river, drainage or other watercourse. The existing site is disturbed with compacted dirt, gravel and pavement; and is predominately flat with slopes to landscaped areas along the north, west and south perimeters. The new well facilities would result in 9,550 sf of new impervious surface (**Table 1**) in the southwest portion of the site (**Figure 3**).

Stormwater runoff patterns would be similar to existing conditions, whereby surface flow on site permeates into the unpaved areas and flows to the landscaped areas and storm drain inlet at the corner of Airport Boulevard and Roache Road. The amount of surface runoff on site would increase due to the increase in impervious surface. As described in Section 1.4.4, Other Improvements, the regrading and repaving would route stormwater to the existing drainage ditch and storm drain inlet on the western side of the site (same shoulder area to be improved). Therefore, the project would not result in substantial erosion or siltation or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site or create or contribute runoff water that would exceed the capacity of the storm drain system.

During construction, well drilling, excavation, trenching, and grading would result in the temporary alteration of the ground surface that could have a minor effect on surface stormwater drainage patterns. However, most ground disturbing activities would occur during Phase 2, between February 2021 and November 2021, which is predominately outside of the rainy season (October – April), reducing the risk of rain events that could increase stormwater runoff and result in erosion or siltation on- or off-site. Upon completion of construction, all openings would be backfilled and graded to preconstruction conditions.

Further, the Federal Emergency Management Agency (FEMA) National Flood Insurance Rate Map has the project area mapped as Zone X (less than 1 percent chance of annual flood).

The construction of the well facilities would not contribute to additional sources of polluted runoff. Throughout construction activities, erosion and sedimentation BMPs would be implemented to protect water quality, as described in Section 1.6, Construction and Operation Best Management Practices (e.g., installation of straw waddles around storm drains, replanting bare soils). These BMPs have been developed to minimize the potential for polluted runoff to enter the stormwater drainage system, consistent with the Watsonville Municipal Code, Title 7, Chapter 6, Excavations, Grading, Filling, and Erosion Control. After construction, most stormwater would permeate through unpaved surfaces or flow to surrounding landscaped areas which serves as a filter protecting water quality. Therefore, this impact would be less than significant.

iv. Impede or redirect flood flows?

Less Than Significant Impact. Implementation of the project includes the construction of three small aboveground structures (pump station, treatment system, backup generator). These facilities would be located on a slightly elevated site, whereby stormwater would generally be absorbed into the surrounding unpaved surface or flow to adjacent landscaped areas which slope towards the roadway. The project site is not located within a FEMA flood zone or area that receives substantial flood flows and, therefore, would not impede or redirect flood flows.

d. Would the project, in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

Less Than Significant Impact. The project area does not support any water bodies within or adjacent to the project area, and has been mapped by the FEMA National Flood Insurance Rate Map (May 2012) as located in Zone X, with a less than 1 percent chance of flood per year. The project area is also located approximately 4 miles inland from the Monterey Bay, and 6 miles from Pajaro Dunes, the closest tsunami inundation area. Because the project would not result in the production of pollutants, and would not result in an increased risk of the project area due to flooding, tsunami or seiche, this impact would be less than significant.

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

No Impact. As discussed above, implementation of the project would be in compliance with the PVGB Management Plan. The project would provide high quality water to the community of Watsonville, without further degrading water quality or supply, which aligns with the charter of the Basin Management Plan. Therefore, there would be no impact.

Mitigation Measures

None. The analysis completed for this section indicates that no significant impacts would result from the proposed project's implementation. As a result, no mitigation measures are required.

2.5.11 Land Use and Planning

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The 2-acre project site is owned by the Watsonville Municipal Airport, which is located on the north side of Airport Boulevard; zoned PF for public facilities use; and currently used by the City for temporary construction site storage. The triangular project site is bound by Airport Boulevard to the north and Roache Road to the south. Surrounding land uses include the airport and industrial land uses to the north and residential land uses to the south and east (**Figure 2**).

Impact Analysis

a. Would the project physically divide an established community?

No Impact. Drilling of the well and construction of the well pump station, treatment system, backup generator and utility connections would be contained within the 2-acre project site currently enclosed by fencing and landscaping. Work outside the fenced area includes underground water pipeline replacement and utility connections, shoulder improvements and sidewalk extension within the Roache Road right-of-way, and landscaping improvements. Implementation of the project would not require subdivision or restrict access to surrounding parcels, and would not physically divide an established community, including the surrounding residential area.

b. Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Less Than Significant Impact. The project, including drilling of public facilities (well installation) is an allowed use within the Transportation, Communications & Utilities land use designation and “PF” zoning designation. As described in Section 2.5.4, Biological Resources, the project site is identified as a Habitat Protection/Open Space area in the Watsonville Airport Land Use Plan (**Figure 5**). The purpose of this designation is to provide area for habitat protection and open space for use as a “clear zone”, providing protection of airspace for the runway (Watsonville Municipal Airport 2003); and the project site falls into the latter category as no Santa Cruz tarplant occurs on the project site (JGA 2007). Therefore, the project would not conflict with any land use plan, policy, or regulation adopted for the purpose(s) of avoiding or mitigation an environmental effect.

Mitigation Measures

None. The analysis completed for this section indicates that no significant impacts would result from the proposed project's implementation. As a result, no mitigation measures are required.

2.5.12 Mineral Resources

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The project area is located within the City of Watsonville Urban Services Boundary, and is highly disturbed in nature. It has also not been identified as an area that contains any known mineral resources that would be of value to the region and the residents of the state (County Santa Cruz 2020).

Impact Analysis

a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

No Impact. The project area has not been identified as an area that contains any known mineral resources that would be of value to the region and the residents of the state (County Santa Cruz 2020). The project would involve installing a water well by drilling approximately 680 feet below ground surface, and open trenching up to 15 feet deep for supporting infrastructure (refer to Sections 1.4.1 and 1.5.2). These ground disturbing activities would be limited to areas where no mineral resources have been identified, and are not likely to occur. Therefore, implementation of the project would not 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?

No Impact. The project site land use designation is Transportation, Communications & Utilities and zoning designation is “PF” or Public Facilities, located within the Urban Services Boundary of the City (City of Watsonville 2005). This designation and zone has not been identified as an extractive use zone for mineral resources or quarries, or a mineral rich/dependent area. Therefore, the proposed project would not result in the loss of availability of a locally important mineral resource recovery site delineate on a local general plan, specific plan or other land use plan.

Mitigation Measures

None. The analysis completed for this section indicates that no significant impacts would result from the proposed project's implementation. As a result, no mitigation measures are required.

2.5.13 Noise

Would the project result in:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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, expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Environmental Setting

Some land uses are generally regarded as being more sensitive to noise than others due to the type of population groups or activities involved. Sensitive population groups generally include children and the elderly. Noise sensitive land uses typically include all residential uses (single- and multi-family, mobile homes, dormitories, and similar uses), hospitals, nursing homes, schools, and parks. The nearest sensitive receptors are the residences located along Roache Road, approximately 30 feet south of the proposed pipeline installations in Roache Road, and 100 feet east of the site parcel boundary (**Figure 2**).

The City of Watsonville Noise Ordinance (Section 5-8.01 of the Municipal Code) is the applicable standard for evaluating potential noise impacts of the project. There are no City of Watsonville ordinances that specifically regulate construction or operational noise levels. However, Section 5-8.01 of the Watsonville Municipal Code states that between the hours of 10:00 p.m. and 7:00 a.m., it shall be unlawful for any person on residential property or a public way to make or continue, or cause to be made or continued, any offensive, excessive, unnecessary, or unusually loud noise or any noise which either annoys, disturbs, injures, or endangers the comfort, repose, health, peace, or safety of others on residential property or public ways within the City. The ordinance is specifically concerned with the using, operating, or permitting to be played, used, or operated of any radio receiving set, musical instrument, phonograph, stereo, television, or other machine or device for producing or reproducing sound in such a manner as to disturb the peace, quiet, and comfort of neighboring residential inhabitants.

Impact Analysis

- a. **Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?**

Construction

Less Than Significant Impact. Construction of the proposed project would generate temporary noise from operation of heavy construction equipment and truck trips. Although construction activities mostly occur during daytime hours and would be temporary (16 total months), noise may be audible to nearby sensitive receptors. Additionally, approximately 10 days of nighttime construction may be required during well installation.

Reference noise levels for construction equipment anticipated to be required for the project are listed in **Table 3**. Noise levels are measured at 50 feet, and typically attenuate 6 dB for each doubling of distance. Based on the activities proposed for the project, the equipment with the loudest operating noise level that would be used often during activity would be pavement saw cutters, which would produce noise levels of 90 dBA at a distance of 50 feet, followed by rollers and excavators, which would produce noise levels of 85 dBA at 50 feet. The nearest sensitive receptors to the project construction area are residences located approximately 30 feet from pipeline installation on Roache Road. At that distance, noise levels from individual pieces of equipment may reach approximately 95 dBA.

The nearest residences to well installation activities are located approximately 100 south of the well installation area, where nighttime construction would be required. The noisiest pieces of equipment anticipated for Phase 1 are trucks, which would generate noise levels of approximately 84 dBA at 50 feet. At 100 feet, noise levels would be reduced to approximately 78 dBA.

Therefore, construction noise would have the potential to result in noise levels that would disturb nearby receptors, especially during nighttime construction. However, as described in the Project Description, construction would include the use of temporary sound barriers or walls. The length of the sound attenuation structure would be approximately 100 linear feet, and the height would be a minimum of 16 feet. A barrier height of 16 feet would provide approximately 13 dBA of noise attenuation (Harris 1979), although additional reduction may be achieved depending on selected material.

Noise generated during project construction would potentially increase the ambient noise levels in adjacent areas. However, construction would be temporary, the type of equipment in operation and location would vary, and a noise barrier would be implemented to minimize noise exposure. Therefore, although operation of construction equipment would be audible to nearby receptors, it would not be excessive, unnecessary, or unusually loud.

Following construction, the well pump station, generator, and treatment system would be located within CMU block buildings or similar structure that would enclose equipment and attenuate equipment noise. Operation of the proposed project is not anticipated to generate more than a nominal increase in vehicle trips for maintenance activities. Operation of the proposed project would not result in a permanent increase in ambient vehicle noise levels. Therefore, operational noise impacts of the proposed project would not be excessive, unnecessary, or unusually loud.

Table 3. Typical Noise Levels for Common Construction Equipment (at 50 feet)

Equipment	Lmax (dBA)
Air Compressor	80
Backhoe	80
Compactor	82
Concrete Pump	82
Concrete Saw	90
Excavator	85
Generator	82
Loader	80
Pick-up Truck	55
Roller	85
Truck	84

Source: FTA 2018.

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

Less Than Significant with Mitigation Incorporated. The use of construction and grading equipment would potentially generate periodic vibration in the project area. The equipment required for the project with the potential to generate the highest level of vibration during any phase is a vibratory roller, which typically generates vibration levels of 0.21 peak particle velocity (PPV) at 25 feet (FTA 2018). At 30 feet, the location of the nearest residences, vibration would be reduced to 0.16 PPV, which is below the Federal Transit Administration potential damage criteria of 0.2 PPV for non-engineered timber and masonry buildings (FTA 2018). Therefore, normal construction would not result in excessive groundborne vibration.

Approximately 10 days of nighttime construction would be required for well installation, which would have the additional potential to result in sleep disturbance. A vibration velocity level of 65 vibration decibel (VdB) would have the potential to disturb sleep (FTA 2018). The equipment required for well installation with the potential to generate the highest level of vibration is a drill rig, which typically generates vibration levels of 0.089 PPV at 25 feet, which is equivalent to a vibration velocity level of 87 VdB (FTA 2018). At 100 feet, the distance to the nearest residence from well installation, vibration would be reduced to 69 VdB. Vibration would be reduced to below 65 VdB

beyond 135 feet of equipment operation. Therefore, vibration would have the potential to result in the generation of vibration during nighttime hours that would be considered a significant nuisance.

This impact would be potentially significant. Due to the short extent of nighttime construction (approximately 10 days), vibration impacts from nighttime well installation would be less than significant impact with implementation of Mitigation Measure NOI-1, Vibration Best Management Practices.

c. Would the project, 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, expose people residing or working in the project area to excessive noise levels?

Less Than Significant Impact. The project is located adjacent to Watsonville Municipal Airport. However, the project proposes potable water, sewer, storm drain and telecommunications infrastructure that would not be sensitive to flight noise. Thus, the project would not expose people residing or working in the project area to excessive aircraft or other noise. Further, although the project would include new structures for equipment, structures would be one-story in height and would not impact air traffic patterns.

Mitigation Measures

The following mitigation is required as part of the project to ensure that potential vibration impacts during nighttime construction are mitigated to levels that are less than significant.

NOI-1: Vibration Best Management Practices. Prior to the commencement of nighttime construction activities within 135 feet of a residence, the construction contractor shall provide written notification to receptors within 135 feet of construction activities at least 2 weeks prior to the start of any nighttime construction activities. The notice shall include the estimated start date and duration of evening and nighttime (7:00 p.m. to 7:00 a.m.) construction activities. Additionally, the construction contractor shall be required to implement best management practices (BMPs) to minimize vibration during evening and nighttime hours, and the BMPs shall be included in project construction documents. The vibration BMPs shall include, but are not limited to:

- Limit use of most vibration-intense equipment (drill rig, trucks) to daytime hours to the extent possible;
- Use only properly maintained equipment with vibratory isolators;
- Operate equipment as far from sensitive receptors as possible; and
- Use rubber-tired vehicles as opposed to tracked vehicles.

2.5.14 Population and Housing

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The City of Watsonville has an estimated population of 54,353 and mix of housing that includes single family, multi-family, senior, and rural residential (www.cityofwatsonville.org). The residences south and east of the project site are predominately small family homes.

Impact Analysis

- a. **Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?**

Less Than Significant Impact. The proposed project is a new municipal water well and associated infrastructure, not a residential or commercial development. The purpose of the project is to provide system redundancy in case an existing water well is inoperable, not to provide additional water supply to accommodate new population or housing growth. The City currently relies on several groundwater well pump stations, located throughout the City, for its potable water supply. Much of the existing infrastructure and many of the existing wells are in excess of 50+ years in age and are nearing the end of their functional life span. Implementation of the proposed project would provide up to 1,825 gpm of potable water toward the City's goal of adequate system redundancy in the event one or more existing groundwater pump stations fail or need to be taken offline. Additionally, the implementation of the project would involve the replacement of an existing 6-inch diameter cast-iron pipe water main with a new 8-inch diameter ductile iron water main, extending from Roache Road/Airport Boulevard intersection eastward approximately 600 feet. The replacement main is needed because the existing cast-iron main is old, decaying and beyond its service life and to accommodate increased flow, if/when the new well is employed when another well is not adequately operating or needs to be taken offline permanently. As such the project would not induce substantial unplanned population growth in an area, either directly or indirectly.

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

No Impact. The project area is an existing “PF” or “public facilities” zoned parcel, owned by the City (Airport District) and actively used by the City for temporary construction site storage. All project activities would occur on site and would not require the temporary or permanent displacement of people or housing, nor would the project necessitate the construction of replacement housing elsewhere.

Mitigation Measures

None. The analysis completed for this section indicates that no significant impacts would result from the proposed project’s implementation. As a result, no mitigation measures are required.

2.5.15 Public Services

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

Police and Fire. Police protection services are provided by the City of Watsonville Police Department, who generally serve from mobile patrol vehicles; and fire protection services are provided by the City of Watsonville Fire Department. The closest fire station is Station 2, located at 370 Airport Blvd, approximately 0.3 mile southwest of the project site.

Schools. The Pajaro Valley Unified School District serves the City of Watsonville. The project site is located centrally between four different school sites, including 0.35 mile from Freedom Elementary School, 0.63 mile from Pacific Coast Charter School, 0.90 mile from Calabasas Elementary School, and 0.90 mile from Rolling Hills Middle School

Parks. Park services in the project area are provided by the City of Watsonville Parks Department. There are no neighborhood, regional parks or other recreational facilities within a quarter mile of the project site. The nearest park-type facilities are associated with the schools listed above.

Impact Analysis

- a. **Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: Fire Protection, Police Protection, Schools, Park, or other public facilities?:**

No Impact. The proposed project is construction of a municipal water well and associated facilities on a site zoned for public facilities and currently by the City for temporary construction site storage. The project does not include the provision of new or physically altered governmental facilities, nor housing or other population generating uses that would result in the need for new or physically altered facilities in order to maintain acceptable service rations, response times or other performance objectives for any public services, including fire protection, police protection, schools, parks, or other public facilities. Project construction would not displace or remove any existing school, park or other public facilities. The project site is part of the normal service area for police and fire protection, and the proposed use (new municipal well and associated facilities) would not increase the need for these services.

Mitigation Measures

None. The analysis completed for this section indicates that no significant impacts would result from the proposed project's implementation. As a result, no mitigation measures are required.

2.5.16 Recreation

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

There are no neighborhood and regional parks or other recreational facilities within a quarter mile of the project site. As described in Section 2.5.15, Public Services, the nearest recreation facilities are associated with the nearby schools located 0.35–0.90 mile from the site. Impact Analysis

- a. **Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?**
- b. **Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?**

No Impact. The proposed project is a new municipal water well and associated facilities on a publicly owned site, which is zoned for public facilities and is currently used by the City for temporary construction site storage. Implementation of the project would not increase the use of existing neighborhood and regional parks or other recreational facilities nor does the project include recreational facilities or necessitate the construction or expansion of recreational facilities which might have an adverse physical effect on the environment. Further, the project would not cause substantial physical deterioration of surrounding recreational facilities, nor accelerate deterioration of recreational facilities.

Mitigation Measures

None. The analysis completed for this section indicates that no significant impacts would result from the proposed project's implementation. As a result, no mitigation measures are required.

2.5.17 Transportation

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Environmental Setting

The project site is located at the corner of Airport Boulevard, which is a 4-lane major arterial roadway with sidewalks and bicycle lanes, and Roache Road, which is a local neighborhood street without sidewalks and bicycle lanes. The project site is currently used by the City for temporary construction site storage, so City vehicles, trucks and heavy equipment periodically travel to the site using Airport Boulevard and Roache Road. The level of service on both roadways is acceptable, based on the traffic study prepared as part of the draft General Plan Update (City of Watsonville 2012) and free flowing conditions observed at various times of the day in 2020. The current General Plan (City of Watsonville 2005) and the draft General Plan Update both include a Transportation and Circulation chapter with guiding principles and performance goals.

Impact Analysis

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

No Impact. The proposed project is installation of a new municipal water supply well and associated infrastructure for system redundancy. There would be no conflict with the City's General Plan principles and policies addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.

b. Would the project or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

Less Than Significant Impact. In response to the passage of Senate Bill 743 in 2013 and other climate change strategies, the Governor's Office of Planning and Research amended the CEQA Guidelines to replace Level of Service (LOS) with vehicle miles traveled (VMT) as the measurement for traffic impacts. The "Technical Advisory on Evaluating Transportation Impacts

in CEQA,” prepared by the Governor’s Office of Planning and Research (2018) provided recommended thresholds and methodologies for assessing impacts of new developments on VMT. Tying significant thresholds to the State’s GHG reduction goals, the guidance recommends a threshold reduction of 15 percent under current average VMT levels for residential projects (per capita) and office projects (per employee), and tour-based reduction from current trips for retail projects. Based on the latest estimates compiled from the Highway Performance Monitoring System, the average daily VMT in Santa Cruz County is 18.3 miles per capita (DOF 2018; Caltrans 2018). The guidelines also recommend a screening threshold for residential and office projects – trip generation under 110 trips per day is generally considered a less than significant impact.

During project construction, there would be an estimated 16 haul trips/day and 25 worker trips/day (41 trips/day total) during Phase 1 and an estimated 94 hauling trips/day and 23 workers trips/day (117 trips/day total) during Phase 2. Additionally, the estimated worker trip length is 12.3 miles (7.3 miles for vendors and 20 miles for haul trips). Although the Phase 2 daily trips/day is 117/trips/day, which is above the 110 trips/day threshold, the overall project average trips/day (Phase 1 and 2 combined) is 79 trips/day, and the estimated worker trip length of 12.3 is below the average daily VMT in Santa Cruz County (18.3).

Once constructed and operating, the well would be monitored remotely with only periodic maintenance visits to the site by City personnel. Because the purpose of the project is to provide system redundancy and not to provide additional water supply, the project would not result in secondary growth inducing impacts (from residential or commercial construction and increased vehicle trips) which would require the expansion or improvement of roadway related infrastructure. Therefore, the project would not conflict with or be inconsistent with CEQA Guidelines, Section 15064.3(b)(1), applicable to land use projects.

c. Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No Impact. The proposed project includes minor shoulder improvements along Roache Road but no new roadway or travel features, thus there would be no increase in hazards due to a geometric design feature (e.g., sharp curve or dangerous intersections). The new well and periodic visits to the site by maintenance personnel is compatible with the existing use of the project site by the City for temporary construction site storage, thus there would be no increase in hazards due to incompatible uses.

d. Would the project result in inadequate emergency access?

Less Than Significant Impact. Construction activities would require temporary lane closures for approximately one week during pipeline installation, which could slow vehicular travel on Roache Road and possibly Airport Boulevard. As described in Section 1.6, Construction and Operation

Best Management Practices under Traffic Control, the following measures would be implemented to ensure emergency access.

- Prior to the start of construction activities that have the potential to disrupt traffic, notify adjacent property owners and businesses, and emergency personnel of construction time frame and the location of any planned lane closures.
- Prior to the start of construction, install signage that includes the dates of construction, contact information for the City liaison to answer project specific questions.
- Ensure that roadways with the project area remain open (i.e., one lane of traffic would be open, although it may have controlled access) to the greatest extent possible, and that lane closures (if required) would be safely and effectively managed with appropriate safety flags and signage.
- Ensure that emergency vehicle access is retained on all roadways at all times.

Once construction is complete, operation of the project facilities would be contained on the project site, and there would be no project facilities or substantial increase in traffic that would result in inadequate emergency access.

Mitigation Measures

None. The analysis completed for this section indicates that no significant impacts would result from the proposed project's implementation. As a result, no mitigation measures are required.

2.5.18 Tribal Cultural Resources

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. 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:				
i. 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	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Environmental Setting

Native American populations living in the project area at the time of European contact are attributed to the Ohlone, who occupied lands from the Monterey peninsula inland to San Juan Bautista and north to Santa Cruz and beyond. Further south in the Carmel River Valley were the Esselen. It is likely that the two groups interacted, and that socio-political boundaries may have shifted at different points in history (Albion 2020).

Section 21080.3.1(b) of the California Public Resources Code (AB 52) requires a lead agency formally notify a California Native American tribe that is traditionally and culturally affiliated within the geographic area of the discretionary project when formally requested. As of this writing, no California Native American tribes traditionally and culturally affiliated with the Santa Cruz County region have formally requested a consultation with the City of Watsonville (CEQA Lead Agency) regarding tribal cultural resources.

Impact Analysis

- a. **Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:**
 - i. **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**
 - ii. **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.**

Less Than Significant Impact. As described above in Section 2.5.5, Cultural Resources, and the Phase I Archaeological Investigations (Albion 2020), the potential for buried archaeological deposits and historical resources in the Project APE is very low given the lack of substantial human occupation visible in historic imagery from the nineteenth and early twentieth centuries, heavy disturbance by modern development, the lack of previously recorded cultural resources within the APE, and the lack of archaeological deposits previously identified within a quarter-mile radius. The results of Albion's pedestrian survey turned up no evidence of precontact Native American or historic period cultural resources within the Project APE. Further, no California Native American tribes traditionally and culturally affiliated with the Santa Cruz County region have formally requested a consultation with the City of Watsonville (CEQA Lead Agency) regarding tribal cultural resources.

Potential impacts associated with the disturbance of Native American remains during ground disturbing construction activities is addressed under the discussion for "c" in Section 2.5.5, Cultural Resources.

Mitigation Measures

None. The analysis completed for this section indicates that no significant impacts would result from the proposed project's implementation. As a result, no mitigation measures are required.

2.5.19 Utilities and Service Systems

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Environmental Setting

The City of Watsonville provides utilities and systems that serve the project site and surrounding area for water, wastewater, storm drainage, and solid waste. The City Wastewater Division operates the Watsonville Wastewater Treatment Facility, which processes an average of 6.7 million gallons of wastewater every day. Residential solid waste is accommodated at the City landfill, which will reach capacity by the end of 2020, and all other solid waste, including construction and debris, is transported to the Monterey Regional Waste Management District landfill in Marina (Banderas pers. comm. 2020). As described in Section 2.5.6, Energy, electricity and natural gas service is provided by PG&E and MBCP. Telecommunication service is provided by AT&T, as well as other providers.

Impact Analysis

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

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

Less Than Significant Impact. The purpose of the project (drilling of a new water well) is to provide system redundancy, not to provide additional water supply, and ensure the City has sufficient water supplies during normal, dry and multiple dry years.

The City currently relies on several groundwater well pump stations, located throughout the City, for its potable water supply. Much of the existing infrastructure and many of the existing wells are in excess of 50+ years in age, and are nearing the end of their functional life span. Implementation of the proposed project would provide up to 1,825 gpm of potable water toward the City's goal of adequate system redundancy in the event one or more existing groundwater pump stations fail or need to be taken offline. Additionally, the implementation of the project would involve the replacement of an existing 6-inch diameter cast-iron pipe water main, with a new 8-inch diameter ductile iron water main, extending from Roache Road/Airport Boulevard intersection eastward approximately 600 feet. The existing cast-iron main is old, decaying and beyond its service life, and to accommodate increased flow, if/when the new well is employed when another well is not adequately operating or needs to be taken offline permanently. Additionally, project implementation includes connections to the existing sewer and storm drain system, but no expansion to these facilities, and the installation of approximately 600 feet of fiber optic conduit, which would be used for communication and remote facility operation and monitoring (alarms and controls). As described in other sections above, these utility connections and replacement of the water pipeline in Roache Road would have temporary construction impacts determined less than significant.

The provision of system redundancy, ensuring that the City maintains the ability to continue service to municipal customers when older wells go offline, would not be considered "new or expansion of" water service, which would result in any growth inducing impacts. Therefore, implementation of the project would not result in the relocation or reconstruction of new or expanded water, wastewater treatment, or stormwater drainage, electric power, natural gas, or telecommunications facilities that would cause significant environmental effects.

c. Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Less Than Significant Impact. The project includes connections to the existing sewer system so wastewater from well installation and maintenance can be treated, rather than entering the storm drain system. There is adequate sanitary sewer capacity to serve the amount of backwash water from the pump and treatment facilities.

- d. **Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?**
- e. **Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?**

Less Than Significant Impact. The project would result in a minor amount of construction-related solid waste, including debris associated with minor land clearing required to install the well facilities, utility connections, and landscape improvements. The solid waste would be transported to the Monterey Regional Waste Management District landfill, which has adequate capacity and accommodates construction and demolition debris (Banderas pers. comm. 2020). Thus, the project would adhere to the City's Construction Waste Management Plan to meet the City and California Green Business Code requirements to recycle at least 65 percent of materials generated at construction and demolition projects.. Once constructed, the project would not generate solid waste.

Therefore, the project would not generate solid waste in excess of State or location standards, or in excess of the capacity of local infrastructure, or impair the attainment of solid waste reduction goals. The project would not be inconsistent with federal, state, or local management and/or reduction statutes and regulations related to solid waste.

Mitigation Measures

None. The analysis completed for this section indicates that no significant impacts would result from the proposed project's implementation. As a result, no mitigation measures are required.

2.5.20 Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Environmental Setting

The project area is surrounded by urban development and paved roadways, and is over 2 miles from fire hazard areas identified by the County's Operational Emergency Management Plan (County of Santa Cruz 2015). Within the project area, the land is largely paved, or expansive areas of open dirt that is sparsely vegetated, supporting maintenance debris and equipment.

Impact Analysis

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

Less Than Significant Impact. The project area is located at the Airport Boulevard/Roache Road intersection, located 0.25 mile south of the Airport Boulevard/Freedom Boulevard intersection, which is identified as an evacuation route for leaving the City in the City's General Plan (City of Watsonville 2005). Airport Boulevard is a primary road or arterial that would be used to evacuate the City. Construction activities would require temporary single-lane closures for approximately one week during pipeline installation, which could slow vehicular travel on Roache Road and possibly Airport Boulevard. As described in Section 1.6, Construction and Operation Best Management Practices under Traffic Control, the following measures would be implemented during construction to ensure emergency access.

- Prior to the start of construction activities that could disrupt traffic, notify adjacent property owners and residents, and emergency personnel of construction time frame and the location of planned lane closures.
- Prior to the start of construction, install signage that includes the dates for construction, contact information for the City liaison to answer project specific questions.
- Ensure that roadways within the project area remain open (i.e., one lane of traffic would be open, although it may have controlled access) to the greatest extent possible, and that lane closures would be safely and effectively managed with appropriate safety flags and signage.
- Ensure that emergency vehicle access is retained at all times.

Once construction is complete, operation of the project facilities would be contained within the project area, and there would be no structure, apparatus, or infrastructure in areas that would restrict or alter emergency response, evacuation or access. Therefore, the project would not substantially impair an adopted emergency response plan or emergency evacuation plan.

- b. Would the project, 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?**

Less Than Significant Impact. The project area is not located in a State Responsibility Area, a Very High Fire Hazard Severity Zone, or a County-mapped Critical Fire Hazard Area, and is relatively flat in nature (slope grade less than 15 percent) (County of Santa Cruz 2020). Furthermore, the project has been designed to comply with all fire safety code requirements to avoid any potential wildfire risks associated with the construction process.

- c. Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?**

Less Than Significant Impact. Implementation of the project would not require the installation or maintenance of wildfire infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that would exacerbate the fire risk or impact the environment. Following the construction activities related to the installation of groundwater wells and associated infrastructure, the project area would be returned to near pre-project conditions. Therefore, implementation of the project would not result in additional project elements that would exacerbate wildfire risks.

- d. **Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?**

Less Than Significant Impact. The project area is not located within a State Responsibility Areas, a Very High Fire Hazard Severity Zone, or a County-mapped Critical Fire Hazard Area (County Santa Cruz 2020). Downslope and downstream impacts associated with wildfires are unlikely to result from the project, as the project area is relatively flat in nature and does not support water bodies within or immediately adjacent to the project area. Regardless, the project design would incorporate all applicable fire safety code requirements and includes fire protection devices as required by the local fire agency.

Mitigation Measures

None. The analysis completed for this section indicates that no significant impacts would result from the proposed project's implementation. As a result, no mitigation measures are required.

2.5.21 Mandatory Findings of Significance

Does the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Note: Authority cited: Sections 21083 and 21083.05, Public Resources Code. Reference: Section 65088.4, Gov. Code; Sections 21080(c), 21080.1, 21080.3, 21083, 21083.05, 21083.3, 21093, 21094, 21095, and 21151, Public Resources Code; Sundstrom v. County of Mendocino, (1988) 202 Cal.App.3d 296; Leonoff v. Monterey Board of Supervisors, (1990) 222 Cal.App.3d 1337; Eureka Citizens for Responsible Govt. v. City of Eureka (2007) 147 Cal.App.4th 357; Protect the Historic Amador Waterways v. Amador Water Agency (2004) 116 Cal.App.4th at 1109; San Franciscans Upholding the Downtown Plan v. City and County of San Francisco (2002) 102 Cal.App.4th 656.

Impact Analysis

- a. **Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?**

Less Than Significant Impact. As described in Sections 2.5.4, Biological Resources, and 2.5.5, Cultural Resources, the project would not substantially reduce habitat or otherwise have adverse effects on fish, wildlife or plants or eliminate important examples of California history or prehistory.

- b. **Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?**

Less Than Significant Impact. The purpose of the project is to provide system redundancy to ensure the City has a potable water supply in the event one of the other water supply wells fails. Accordingly, the project would not exacerbate or result in a considerable contribution to a potentially significant hydrology and water supply impact. As described in Sections 2.5.5, Cultural Resources, and 2.5.13, Noise, the only potential impacts requiring mitigation to ensure a less than significant impact are construction related vibration impacts and the remote possibility of discovering buried human remains. These potential temporary impacts would be reduced to a less than significant level with mitigation and therefore would not result in a considerable contribution to other construction-related potentially significant impacts associated with other projects in the neighborhood or City.

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

Less Than Significant Impact. The only potentially adverse effects on human beings would be the approximately 10 days of nighttime construction that would be required for well installation, which would have the additional potential to result in sleep disturbance, as described in Section 2.5.13. With implementation of Mitigation Measure NOI-1, Vibration Best Management Practices, and the temporary nature and relatively short duration, the impact is not considered to be a substantial adverse effect on human beings.

Mitigation Measures

The following mitigation is required as part of the project to ensure that potential cultural resources and vibration impacts are mitigated to levels that are less than significant:

- CR-1: Stop Work in the Event of Unexpected Occurrence of Human Remains during Construction
- NOI-1: Vibration Best Management Practices

This page intentionally left blank.

Section 3 List of Preparers

3.1 Lead Agency

City of Watsonville
250 Main Street
Watsonville, California 95076
Beau Kayser, Water Operations Division

3.2 Consultants

Harris & Associates

450 Lincoln Avenue, Suite 103
Salinas, California 93901

Kate Giberson, Project Director/Manager

David J. R. Mack, AICP, Senior Environmental Analyst

Sharon Toland – Air Quality, Greenhouse Gas, Noise

Shannon Bane – Biological Resources

Wendy Young – Geology and Soils, Hydrology and Water Quality

Sarah Faraola – Environmental Analyst

Albion Environmental – Cultural Resources

1414 Soquel Avenue, Suite 205
Santa Cruz, California 95062

Douglas Ross, Senior Archaeologist

This page intentionally left blank.

Section 4 **References**

- Albion (Albion Environmental). 2020. Phase I Archaeological Investigations for the Roache Road Municipal Well and Pump Station Project, Watsonville, California. June.
- ATSDR (Agency for Toxic Substances and Disease Registry). 2015. Environmental Odors – Frequently Asked Questions. October 23. Accessed June 2020. <https://www.atsdr.cdc.gov/odors/faqs.html>.
- BAAQMD (Bay Area Air Quality Management District). 2017. 2017. California Environmental Quality Act Air Quality Guidelines. May.
- Banderas, T. 2020. June 24 telephone conversation with Tony Banderas, Senior Integrated Waste Work, City of Watsonville.
- Brabb, E.E., S.E. Graham, C. Wentworth, D. Knifong, R. Graymer, and J. Blissenbach. 1997. Geologic Map of Santa Cruz County, California: A Digital Database: U.S. Geological Survey Open-File Report 97-489.
- California Department of Conservation. 2001. Soil Mapping for Santa Cruz County. Division of Mines and Geology.
- Caltrans (California Department of Transportation). 2018. California Public Road Data 2017: Statistical Information Derived from the Highway Performance Monitoring System. November.
- CAPCOA (California Air Pollution Control Officers Association). 2008. CEQA and Climate Change, Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act. Sacramento, California. January.
- CARB (California Air Resources Board). 2005. Air Quality and Land Use Handbook: A Community Health Prospective. April. Accessed June 2020. <https://www.arb.ca.gov/ch/landuse.htm>.
- CARB. 2017. California’s 2017 Climate Change Scoping Plan. November. Accessed June 2020. https://ww3.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf.
- CDFW (California Department of Fish and Wildlife). 2020. California Natural Diversity Database (CNDDDB). Wildlife and Habitat Data Analysis Branch, Sacramento, California. Accessed June 2020. <https://wildlife.ca.gov/Data/CNDDDB/Maps-and-Data>.
- City of Watsonville. 2005. City of Watsonville General Plan.
- City of Watsonville. 2012. Watsonville VISTA 2030, City of Watsonville 2030 General Plan. Draft (not adopted). April.
- City of Watsonville. 2016. Watsonville Municipal Airport Land Use Compatibility Plan. September 2016 Draft. Watsonville, California.
- County of Santa Cruz. 2011. County of Santa Cruz Construction Site Stormwater Pollution Control BMP Manual.
- County of Santa Cruz. 2015. Operational Emergency Management Plan. Office of Emergency Services.
- County of Santa Cruz. 2020. Planning Department GIS Database. Accessed June 11, 2020; June 13, 2020; and June 14, 2020. <https://gis.santacruzcounty.us/gisweb/>.

- DOF (Department of Finance). 2018. E-5 Population and Housing Estimates for Cities, Counties and the State—January 1, 2011–2018. May.
- DTSC (California Department of Toxic Substances Control). 2020. EnviroStor Database. Accessed June 2020.
- FTA (Federal Transit Administration). 2018. Transit Noise & Vibration Impact Assessment. Office of Planning and Environment. September.
- Harris, Cyril M. 1979. Handbook of Noise Control. 2nd ed.
- JGA (John Gilchrist & Associates). 2007. Draft Mitigation Plan for Santa Cruz Tarplant and Coastal Terrace Prairie at the Watsonville Airport. Prepared for the City of Watsonville and the California Department of Fish and Game. Santa Cruz, California.
- Lundorff & Scalmanini Consulting Engineers. 2018. Well Siting Report.
- Lundorff & Scalmanini Consulting Engineers. 2019. Roache Road Site Exploration Summary and Well Design Recommendations.
- MBARD (Monterey Bay Air Resources District). 2008. CEQA Air Quality Guidelines. Monterey, California. February.
- MBARD. 2017. 2012-2015 Air Quality Management Plan. Monterey, California. March 15.
- MBCP (Monterey Bay Community Power). 2018. “Your New Electricity Provider” Brochure. Accessed June 2020. <https://monterey.org/Portals/0/FAQs/MBCP-Fact-Sheet-FINAL-v10.pdf>.
- OPR (Governor’s Office of Planning and Research). 2018. Technical Advisory on Evaluating Transportation Impacts in CEQA.
- Pajaro Valley Water Management Agency. 2014. Pajaro Valley Groundwater Basin Management Plan.
- SWRCB (State Water Resources Control Board). 2020. GeoTracker Database. Accessed June 2020. <https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=154+Roache+Road%2C+Watsonville>.
- USEPA (U.S. Environmental Protection Agency). 2020. Draft Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2018. February. Accessed June 2020. <https://www.epa.gov/sites/production/files/2020-02/documents/us-ghg-inventory-2020-main-text.pdf>.
- USFWS (U.S. Fish and Wildlife Service). 2014. Holocarpha macradenia (Santa Cruz Tarplant) 5-Year Review: Summary and Evaluation. Ventura Fish and Wildlife Office. Ventura, California. February.
- USFWS. 2020. IPaC Species List. Accessed June 2020. <https://ecos.fws.gov/ipac/>.
- Watsonville Municipal Airport. 2003. Watsonville Municipal Airport Master Plan 2001-2020. Adopted June 24 (Resolution No. 179-03). Watsonville, California.

Appendix A. Air Quality Model Outputs

- Estimated Construction and Operational Emissions, Winter
- Estimated Construction and Operational Emissions, Annual

This page intentionally left blank.

Roache Road Well Project - North Central Coast Air Basin, Winter

Roache Road Well Project

North Central Coast Air Basin, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	0.02	1000sqft	1.00	16.00	0
Unrefrigerated Warehouse-No Rail	1.50	1000sqft	1.00	1,500.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.8	Precipitation Freq (Days)	53
Climate Zone	5			Operational Year	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Adjusted to 2 acre lot

Construction Phase - Schedule provided by Watsonville. Same fleet for entire phase. One phase assumed

Off-road Equipment - Fleet provided by Watsonville. Reduced hours because not all would be required each day or at once. Small work area

Off-road Equipment - Fleet provided by Watsonville. Reduced hours because not all would be required each day or at once. Small work area

Grading - Reduced disturbace area acording to info needs

Trips and VMT - Added vendor trip based on CalEEMod estimate.

Construction Off-road Equipment Mitigation -

Roache Road Well Project - North Central Coast Air Basin, Winter

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	4.00	133.00
tblConstructionPhase	NumDays	4.00	221.00
tblConstructionPhase	PhaseEndDate	8/6/2020	2/3/2021
tblConstructionPhase	PhaseEndDate	8/12/2020	12/9/2021
tblConstructionPhase	PhaseStartDate	8/7/2020	2/4/2021
tblGrading	AcresOfGrading	0.00	0.01
tblGrading	AcresOfGrading	0.00	0.83
tblGrading	MaterialExported	0.00	77.00
tblGrading	MaterialExported	0.00	450.00
tblGrading	MaterialImported	0.00	48.00
tblGrading	MaterialImported	0.00	300.00
tblLandUse	LotAcreage	0.00	1.00
tblLandUse	LotAcreage	0.03	1.00
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Welders
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentType		Rollers

Roache Road Well Project - North Central Coast Air Basin, Winter

tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00

2.0 Emissions Summary

Roache Road Well Project - North Central Coast Air Basin, Winter

2.1 Overall Construction (Maximum Daily Emission)**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	1.8747	15.7526	13.7822	0.0339	0.2433	0.7056	0.9489	0.0647	0.6776	0.7423	0.0000	3,233.7610	3,233.7610	0.6944	0.0000	3,251.1216
2021	1.7032	13.8085	13.4100	0.0338	0.2502	0.6713	0.9052	0.0664	0.6317	0.6932	0.0000	3,227.2706	3,227.2706	0.6869	0.0000	3,244.4441
Maximum	1.8747	15.7526	13.7822	0.0339	0.2502	0.7056	0.9489	0.0664	0.6776	0.7423	0.0000	3,233.7610	3,233.7610	0.6944	0.0000	3,251.1216

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	1.8747	15.7526	13.7822	0.0339	0.2432	0.7056	0.9488	0.0647	0.6776	0.7423	0.0000	3,233.7610	3,233.7610	0.6944	0.0000	3,251.1216
2021	1.7032	13.8085	13.4100	0.0338	0.2501	0.6713	0.9027	0.0663	0.6317	0.6929	0.0000	3,227.2706	3,227.2706	0.6869	0.0000	3,244.4441
Maximum	1.8747	15.7526	13.7822	0.0339	0.2501	0.7056	0.9488	0.0663	0.6776	0.7423	0.0000	3,233.7610	3,233.7610	0.6944	0.0000	3,251.1216

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.05	0.00	0.14	0.03	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00

Roache Road Well Project - North Central Coast Air Basin, Winter

2.2 Overall Operational**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0382	0.0000	1.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		3.3000e-004	3.3000e-004	0.0000		3.5000e-004
Energy	6.0000e-005	5.7000e-004	4.8000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.6792	0.6792	1.0000e-005	1.0000e-005	0.6832
Mobile	5.6200e-003	0.0306	0.0700	2.0000e-004	0.0159	2.0000e-004	0.0161	4.2400e-003	1.9000e-004	4.4400e-003		20.2827	20.2827	1.0800e-003		20.3098
Total	0.0439	0.0312	0.0707	2.0000e-004	0.0159	2.4000e-004	0.0161	4.2400e-003	2.3000e-004	4.4800e-003		20.9623	20.9623	1.0900e-003	1.0000e-005	20.9934

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0382	0.0000	1.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		3.3000e-004	3.3000e-004	0.0000		3.5000e-004
Energy	6.0000e-005	5.7000e-004	4.8000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.6792	0.6792	1.0000e-005	1.0000e-005	0.6832
Mobile	5.6200e-003	0.0306	0.0700	2.0000e-004	0.0159	2.0000e-004	0.0161	4.2400e-003	1.9000e-004	4.4400e-003		20.2827	20.2827	1.0800e-003		20.3098
Total	0.0439	0.0312	0.0707	2.0000e-004	0.0159	2.4000e-004	0.0161	4.2400e-003	2.3000e-004	4.4800e-003		20.9623	20.9623	1.0900e-003	1.0000e-005	20.9934

Roache Road Well Project - North Central Coast Air Basin, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Phase 1	Grading	8/3/2020	2/3/2021	5	133	
2	Phase 2	Grading	2/4/2021	12/9/2021	5	221	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Roache Road Well Project - North Central Coast Air Basin, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Phase 2	Graders	0	4.00	187	0.41
Phase 2	Rubber Tired Dozers	0	4.00	247	0.40
Phase 2	Tractors/Loaders/Backhoes	2	4.00	97	0.37
Phase 1	Bore/Drill Rigs	1	4.00	221	0.50
Phase 1	Signal Boards	1	4.00	6	0.82
Phase 1	Generator Sets	2	4.00	84	0.74
Phase 1	Plate Compactors	1	4.00	8	0.43
Phase 1	Welders	1	4.00	46	0.45
Phase 1	Pumps	1	4.00	84	0.74
Phase 1	Off-Highway Trucks	2	4.00	402	0.38
Phase 1	Rubber Tired Dozers	0	4.00	247	0.40
Phase 2	Excavators	1	4.00	158	0.38
Phase 2	Sweepers/Scrubbers	1	4.00	64	0.46
Phase 1	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Phase 2	Off-Highway Trucks	1	4.00	402	0.38
Phase 2	Cranes	1	4.00	231	0.29
Phase 1	Graders	0	4.00	187	0.41
Phase 2	Concrete/Industrial Saws	1	4.00	81	0.73
Phase 2	Rollers	1	4.00	80	0.38
Phase 2	Pumps	1	4.00	84	0.74

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Phase 2	9	23.00	1.00	94.00	12.30	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Phase 1	10	25.00	1.00	16.00	12.30	7.30	20.00	LD_Mix	HDT_Mix	HHDT

Roache Road Well Project - North Central Coast Air Basin, Winter

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Phase 1 - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.3000e-004	0.0000	2.3000e-004	3.0000e-005	0.0000	3.0000e-005			0.0000			0.0000
Off-Road	1.7370	15.4706	12.7164	0.0312		0.7028	0.7028		0.6750	0.6750		2,964.0969	2,964.0969	0.6827		2,981.1643
Total	1.7370	15.4706	12.7164	0.0312	2.3000e-004	0.7028	0.7031	3.0000e-005	0.6750	0.6750		2,964.0969	2,964.0969	0.6827		2,981.1643

Roache Road Well Project - North Central Coast Air Basin, Winter

3.2 Phase 1 - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.0200e-003	0.0353	6.6000e-003	1.0000e-004	2.4500e-003	1.4000e-004	2.5900e-003	6.6000e-004	1.3000e-004	8.0000e-004		10.1337	10.1337	4.3000e-004		10.1446
Vendor	4.6700e-003	0.1247	0.0346	2.8000e-004	6.7700e-003	7.1000e-004	7.4800e-003	1.9500e-003	6.8000e-004	2.6300e-003		29.5633	29.5633	1.7200e-003		29.6064
Worker	0.1320	0.1220	1.0246	2.3100e-003	0.2339	1.9200e-003	0.2358	0.0620	1.7700e-003	0.0638		229.9672	229.9672	9.5700e-003		230.2064
Total	0.1377	0.2820	1.0658	2.6900e-003	0.2431	2.7700e-003	0.2459	0.0646	2.5800e-003	0.0672		269.6642	269.6642	0.0117		269.9573

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.0000e-004	0.0000	1.0000e-004	1.0000e-005	0.0000	1.0000e-005			0.0000			0.0000
Off-Road	1.7370	15.4706	12.7164	0.0312		0.7028	0.7028		0.6750	0.6750	0.0000	2,964.0969	2,964.0969	0.6827		2,981.1643
Total	1.7370	15.4706	12.7164	0.0312	1.0000e-004	0.7028	0.7029	1.0000e-005	0.6750	0.6750	0.0000	2,964.0969	2,964.0969	0.6827		2,981.1643

Roache Road Well Project - North Central Coast Air Basin, Winter

3.2 Phase 1 - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.0200e-003	0.0353	6.6000e-003	1.0000e-004	2.4500e-003	1.4000e-004	2.5900e-003	6.6000e-004	1.3000e-004	8.0000e-004		10.1337	10.1337	4.3000e-004		10.1446
Vendor	4.6700e-003	0.1247	0.0346	2.8000e-004	6.7700e-003	7.1000e-004	7.4800e-003	1.9500e-003	6.8000e-004	2.6300e-003		29.5633	29.5633	1.7200e-003		29.6064
Worker	0.1320	0.1220	1.0246	2.3100e-003	0.2339	1.9200e-003	0.2358	0.0620	1.7700e-003	0.0638		229.9672	229.9672	9.5700e-003		230.2064
Total	0.1377	0.2820	1.0658	2.6900e-003	0.2431	2.7700e-003	0.2459	0.0646	2.5800e-003	0.0672		269.6642	269.6642	0.0117		269.9573

3.2 Phase 1 - 2021**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.3000e-004	0.0000	2.3000e-004	3.0000e-005	0.0000	3.0000e-005			0.0000			0.0000
Off-Road	1.5763	13.5536	12.4416	0.0312		0.6002	0.6002		0.5766	0.5766		2,965.1920	2,965.1920	0.6763		2,982.0993
Total	1.5763	13.5536	12.4416	0.0312	2.3000e-004	0.6002	0.6005	3.0000e-005	0.5766	0.5767		2,965.1920	2,965.1920	0.6763		2,982.0993

Roache Road Well Project - North Central Coast Air Basin, Winter

3.2 Phase 1 - 2021**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	9.5000e-004	0.0323	6.2600e-003	9.0000e-005	9.3300e-003	1.2000e-004	9.4500e-003	2.3500e-003	1.2000e-004	2.4700e-003		10.0106	10.0106	4.3000e-004		10.0214
Vendor	3.8400e-003	0.1136	0.0301	2.8000e-004	6.7700e-003	3.6000e-004	7.1300e-003	1.9500e-003	3.4000e-004	2.2900e-003		29.3041	29.3041	1.6700e-003		29.3459
Worker	0.1222	0.1090	0.9319	2.2400e-003	0.2339	1.8600e-003	0.2357	0.0620	1.7200e-003	0.0638		222.7640	222.7640	8.5500e-003		222.9776
Total	0.1269	0.2549	0.9683	2.6100e-003	0.2500	2.3400e-003	0.2523	0.0663	2.1800e-003	0.0685		262.0787	262.0787	0.0107		262.3448

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.0000e-004	0.0000	1.0000e-004	1.0000e-005	0.0000	1.0000e-005			0.0000			0.0000
Off-Road	1.5763	13.5536	12.4416	0.0312		0.6002	0.6002		0.5766	0.5766	0.0000	2,965.1920	2,965.1920	0.6763		2,982.0993
Total	1.5763	13.5536	12.4416	0.0312	1.0000e-004	0.6002	0.6003	1.0000e-005	0.5766	0.5767	0.0000	2,965.1920	2,965.1920	0.6763		2,982.0993

Roache Road Well Project - North Central Coast Air Basin, Winter

3.2 Phase 1 - 2021**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	9.5000e-004	0.0323	6.2600e-003	9.0000e-005	9.3300e-003	1.2000e-004	9.4500e-003	2.3500e-003	1.2000e-004	2.4700e-003		10.0106	10.0106	4.3000e-004		10.0214
Vendor	3.8400e-003	0.1136	0.0301	2.8000e-004	6.7700e-003	3.6000e-004	7.1300e-003	1.9500e-003	3.4000e-004	2.2900e-003		29.3041	29.3041	1.6700e-003		29.3459
Worker	0.1222	0.1090	0.9319	2.2400e-003	0.2339	1.8600e-003	0.2357	0.0620	1.7200e-003	0.0638		222.7640	222.7640	8.5500e-003		222.9776
Total	0.1269	0.2549	0.9683	2.6100e-003	0.2500	2.3400e-003	0.2523	0.0663	2.1800e-003	0.0685		262.0787	262.0787	0.0107		262.3448

3.3 Phase 2 - 2021**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.5100e-003	0.0000	4.5100e-003	5.1000e-004	0.0000	5.1000e-004			0.0000			0.0000
Off-Road	1.4029	13.1435	12.3128	0.0242		0.6688	0.6688		0.6293	0.6293		2,327.6097	2,327.6097	0.5904		2,342.3699
Total	1.4029	13.1435	12.3128	0.0242	4.5100e-003	0.6688	0.6733	5.1000e-004	0.6293	0.6298		2,327.6097	2,327.6097	0.5904		2,342.3699

Roache Road Well Project - North Central Coast Air Basin, Winter

3.3 Phase 2 - 2021**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.3800e-003	0.1143	0.0221	3.4000e-004	7.4300e-003	4.3000e-004	7.8700e-003	2.0400e-003	4.1000e-004	2.4500e-003		35.3937	35.3937	1.5200e-003		35.4318
Vendor	3.8400e-003	0.1136	0.0301	2.8000e-004	6.7700e-003	3.6000e-004	7.1300e-003	1.9500e-003	3.4000e-004	2.2900e-003		29.3041	29.3041	1.6700e-003		29.3459
Worker	0.1124	0.1002	0.8574	2.0600e-003	0.2152	1.7200e-003	0.2169	0.0571	1.5800e-003	0.0587		204.9428	204.9428	7.8600e-003		205.1394
Total	0.1196	0.3282	0.9096	2.6800e-003	0.2294	2.5100e-003	0.2319	0.0611	2.3300e-003	0.0634		269.6407	269.6407	0.0111		269.9171

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.0300e-003	0.0000	2.0300e-003	2.3000e-004	0.0000	2.3000e-004			0.0000			0.0000
Off-Road	1.4029	13.1435	12.3128	0.0242		0.6688	0.6688		0.6293	0.6293	0.0000	2,327.6097	2,327.6097	0.5904		2,342.3699
Total	1.4029	13.1435	12.3128	0.0242	2.0300e-003	0.6688	0.6708	2.3000e-004	0.6293	0.6296	0.0000	2,327.6097	2,327.6097	0.5904		2,342.3699

Roache Road Well Project - North Central Coast Air Basin, Winter

3.3 Phase 2 - 2021**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.3800e-003	0.1143	0.0221	3.4000e-004	7.4300e-003	4.3000e-004	7.8700e-003	2.0400e-003	4.1000e-004	2.4500e-003		35.3937	35.3937	1.5200e-003		35.4318
Vendor	3.8400e-003	0.1136	0.0301	2.8000e-004	6.7700e-003	3.6000e-004	7.1300e-003	1.9500e-003	3.4000e-004	2.2900e-003		29.3041	29.3041	1.6700e-003		29.3459
Worker	0.1124	0.1002	0.8574	2.0600e-003	0.2152	1.7200e-003	0.2169	0.0571	1.5800e-003	0.0587		204.9428	204.9428	7.8600e-003		205.1394
Total	0.1196	0.3282	0.9096	2.6800e-003	0.2294	2.5100e-003	0.2319	0.0611	2.3300e-003	0.0634		269.6407	269.6407	0.0111		269.9171

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

Roache Road Well Project - North Central Coast Air Basin, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.6200e-003	0.0306	0.0700	2.0000e-004	0.0159	2.0000e-004	0.0161	4.2400e-003	1.9000e-004	4.4400e-003		20.2827	20.2827	1.0800e-003		20.3098
Unmitigated	5.6200e-003	0.0306	0.0700	2.0000e-004	0.0159	2.0000e-004	0.0161	4.2400e-003	1.9000e-004	4.4400e-003		20.2827	20.2827	1.0800e-003		20.3098

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Unrefrigerated Warehouse-No Rail	0.03	0.03	0.03	78	78
Unrefrigerated Warehouse-No Rail	2.52	2.52	2.52	7,357	7,357
Total	2.55	2.55	2.55	7,436	7,436

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Unrefrigerated Warehouse-No Rail	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3
Unrefrigerated Warehouse-No Rail	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Unrefrigerated Warehouse-No Rail	0.543525	0.028472	0.201539	0.126188	0.021864	0.005301	0.018669	0.039782	0.003072	0.002565	0.007028	0.001098	0.000897

Roache Road Well Project - North Central Coast Air Basin, Winter

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	6.0000e-005	5.7000e-004	4.8000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.6792	0.6792	1.0000e-005	1.0000e-005	0.6832
NaturalGas Unmitigated	6.0000e-005	5.7000e-004	4.8000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.6792	0.6792	1.0000e-005	1.0000e-005	0.6832

Roache Road Well Project - North Central Coast Air Basin, Winter

5.2 Energy by Land Use - NaturalGas**Unmitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Unrefrigerated Warehouse-No Rail	5.71233	6.0000e-005	5.6000e-004	4.7000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.6720	0.6720	1.0000e-005	1.0000e-005	0.6760
Unrefrigerated Warehouse-No Rail	0.0609315	0.0000	1.0000e-005	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		7.1700e-003	7.1700e-003	0.0000	0.0000	7.2100e-003
Total		6.0000e-005	5.7000e-004	4.8000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.6792	0.6792	1.0000e-005	1.0000e-005	0.6832

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Unrefrigerated Warehouse-No Rail	0.00571233	6.0000e-005	5.6000e-004	4.7000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.6720	0.6720	1.0000e-005	1.0000e-005	0.6760
Unrefrigerated Warehouse-No Rail	6.09315e-005	0.0000	1.0000e-005	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		7.1700e-003	7.1700e-003	0.0000	0.0000	7.2100e-003
Total		6.0000e-005	5.7000e-004	4.8000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.6792	0.6792	1.0000e-005	1.0000e-005	0.6832

6.0 Area Detail**6.1 Mitigation Measures Area**

Roache Road Well Project - North Central Coast Air Basin, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0382	0.0000	1.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		3.3000e-004	3.3000e-004	0.0000		3.5000e-004
Unmitigated	0.0382	0.0000	1.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		3.3000e-004	3.3000e-004	0.0000		3.5000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	5.7800e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0324					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		3.3000e-004	3.3000e-004	0.0000		3.5000e-004
Total	0.0382	0.0000	1.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		3.3000e-004	3.3000e-004	0.0000		3.5000e-004

Roache Road Well Project - North Central Coast Air Basin, Winter

6.2 Area by SubCategory**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	5.7800e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0324					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		3.3000e-004	3.3000e-004	0.0000		3.5000e-004
Total	0.0382	0.0000	1.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		3.3000e-004	3.3000e-004	0.0000		3.5000e-004

7.0 Water Detail**7.1 Mitigation Measures Water****8.0 Waste Detail****8.1 Mitigation Measures Waste****9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

10.0 Stationary Equipment**Fire Pumps and Emergency Generators**

Roache Road Well Project - North Central Coast Air Basin, Winter

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Roache Road Well Project - North Central Coast Air Basin, Annual

Roache Road Well Project

North Central Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	0.02	1000sqft	1.00	16.00	0
Unrefrigerated Warehouse-No Rail	1.50	1000sqft	1.00	1,500.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.8	Precipitation Freq (Days)	53
Climate Zone	5			Operational Year	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Adjusted to 2 acre lot

Construction Phase - Schedule provided by Watsonville. Same fleet for entire phase. One phase assumed

Off-road Equipment - Fleet provided by Watsonville. Reduced hours because not all would be required each day or at once. Small work area

Off-road Equipment - Fleet provided by Watsonville. Reduced hours because not all would be required each day or at once. Small work area

Grading - Reduced disturbace area acording to info needs

Trips and VMT - Added vendor trip based on CalEEMod estimate.

Construction Off-road Equipment Mitigation -

Roache Road Well Project - North Central Coast Air Basin, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	4.00	133.00
tblConstructionPhase	NumDays	4.00	221.00
tblConstructionPhase	PhaseEndDate	8/6/2020	2/3/2021
tblConstructionPhase	PhaseEndDate	8/12/2020	12/9/2021
tblConstructionPhase	PhaseStartDate	8/7/2020	2/4/2021
tblGrading	AcresOfGrading	0.00	0.01
tblGrading	AcresOfGrading	0.00	0.83
tblGrading	MaterialExported	0.00	77.00
tblGrading	MaterialExported	0.00	450.00
tblGrading	MaterialImported	0.00	48.00
tblGrading	MaterialImported	0.00	300.00
tblLandUse	LotAcreage	0.00	1.00
tblLandUse	LotAcreage	0.03	1.00
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Welders
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentType		Rollers

Roache Road Well Project - North Central Coast Air Basin, Annual

tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00

2.0 Emissions Summary

Roache Road Well Project - North Central Coast Air Basin, Annual

2.1 Overall Construction**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.1015	0.8579	0.7489	1.8500e-003	0.0129	0.0385	0.0513	3.4200e-003	0.0369	0.0404	0.0000	159.9695	159.9695	0.0343	0.0000	160.8276
2021	0.1873	1.6533	1.6178	3.3800e-003	0.0280	0.0814	0.1094	7.3800e-003	0.0767	0.0841	0.0000	295.7080	295.7080	0.0678	0.0000	297.4017
Maximum	0.1873	1.6533	1.6178	3.3800e-003	0.0280	0.0814	0.1094	7.3800e-003	0.0767	0.0841	0.0000	295.7080	295.7080	0.0678	0.0000	297.4017

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.1015	0.8579	0.7489	1.8500e-003	0.0128	0.0385	0.0513	3.4200e-003	0.0369	0.0404	0.0000	159.9693	159.9693	0.0343	0.0000	160.8274
2021	0.1873	1.6533	1.6178	3.3800e-003	0.0277	0.0814	0.1091	7.3500e-003	0.0767	0.0841	0.0000	295.7077	295.7077	0.0678	0.0000	297.4014
Maximum	0.1873	1.6533	1.6178	3.3800e-003	0.0277	0.0814	0.1091	7.3500e-003	0.0767	0.0841	0.0000	295.7077	295.7077	0.0678	0.0000	297.4014

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.71	0.00	0.19	0.28	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00

Roache Road Well Project - North Central Coast Air Basin, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	8-3-2020	11-2-2020	0.5784	0.5784
2	11-3-2020	2-2-2021	0.5543	0.5543
3	2-3-2021	5-2-2021	0.4764	0.4764
4	5-3-2021	8-2-2021	0.4915	0.4915
5	8-3-2021	9-30-2021	0.3152	0.3152
		Highest	0.5784	0.5784

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.9800e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005
Energy	1.0000e-005	1.0000e-004	9.0000e-005	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	1.7839	1.7839	8.0000e-005	2.0000e-005	1.7911
Mobile	1.0200e-003	5.4600e-003	0.0121	4.0000e-005	2.7900e-003	4.0000e-005	2.8300e-003	7.5000e-004	3.0000e-005	7.8000e-004	0.0000	3.3738	3.3738	1.7000e-004	0.0000	3.3781
Waste						0.0000	0.0000		0.0000	0.0000	0.2903	0.0000	0.2903	0.0172	0.0000	0.7192
Water						0.0000	0.0000		0.0000	0.0000	0.1115	0.5533	0.6648	0.0115	2.8000e-004	1.0339
Total	8.0100e-003	5.5600e-003	0.0122	4.0000e-005	2.7900e-003	5.0000e-005	2.8400e-003	7.5000e-004	4.0000e-005	7.9000e-004	0.4018	5.7110	6.1128	0.0289	3.0000e-004	6.9223

Roache Road Well Project - North Central Coast Air Basin, Annual

2.2 Overall Operational**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.9800e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005
Energy	1.0000e-005	1.0000e-004	9.0000e-005	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	1.7839	1.7839	8.0000e-005	2.0000e-005	1.7911
Mobile	1.0200e-003	5.4600e-003	0.0121	4.0000e-005	2.7900e-003	4.0000e-005	2.8300e-003	7.5000e-004	3.0000e-005	7.8000e-004	0.0000	3.3738	3.3738	1.7000e-004	0.0000	3.3781
Waste						0.0000	0.0000		0.0000	0.0000	0.2903	0.0000	0.2903	0.0172	0.0000	0.7192
Water						0.0000	0.0000		0.0000	0.0000	0.1115	0.5533	0.6648	0.0115	2.8000e-004	1.0339
Total	8.0100e-003	5.5600e-003	0.0122	4.0000e-005	2.7900e-003	5.0000e-005	2.8400e-003	7.5000e-004	4.0000e-005	7.9000e-004	0.4018	5.7110	6.1128	0.0289	3.0000e-004	6.9223

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	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

3.0 Construction Detail**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Phase 1	Grading	8/3/2020	2/3/2021	5	133	
2	Phase 2	Grading	2/4/2021	12/9/2021	5	221	

Roache Road Well Project - North Central Coast Air Basin, Annual

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Roache Road Well Project - North Central Coast Air Basin, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Phase 2	Graders	0	4.00	187	0.41
Phase 2	Rubber Tired Dozers	0	4.00	247	0.40
Phase 2	Tractors/Loaders/Backhoes	2	4.00	97	0.37
Phase 1	Bore/Drill Rigs	1	4.00	221	0.50
Phase 1	Signal Boards	1	4.00	6	0.82
Phase 1	Generator Sets	2	4.00	84	0.74
Phase 1	Plate Compactors	1	4.00	8	0.43
Phase 1	Welders	1	4.00	46	0.45
Phase 1	Pumps	1	4.00	84	0.74
Phase 1	Off-Highway Trucks	2	4.00	402	0.38
Phase 1	Rubber Tired Dozers	0	4.00	247	0.40
Phase 2	Excavators	1	4.00	158	0.38
Phase 2	Sweepers/Scrubbers	1	4.00	64	0.46
Phase 1	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Phase 2	Off-Highway Trucks	1	4.00	402	0.38
Phase 2	Cranes	1	4.00	231	0.29
Phase 1	Graders	0	4.00	187	0.41
Phase 2	Concrete/Industrial Saws	1	4.00	81	0.73
Phase 2	Rollers	1	4.00	80	0.38
Phase 2	Pumps	1	4.00	84	0.74

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Phase 2	9	23.00	1.00	94.00	12.30	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Phase 1	10	25.00	1.00	16.00	12.30	7.30	20.00	LD_Mix	HDT_Mix	HHDT

Roache Road Well Project - North Central Coast Air Basin, Annual

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Phase 1 - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0947	0.8432	0.6930	1.7000e-003		0.0383	0.0383		0.0368	0.0368	0.0000	146.5496	146.5496	0.0338	0.0000	147.3934
Total	0.0947	0.8432	0.6930	1.7000e-003	1.0000e-005	0.0383	0.0383	0.0000	0.0368	0.0368	0.0000	146.5496	146.5496	0.0338	0.0000	147.3934

Roache Road Well Project - North Central Coast Air Basin, Annual

3.2 Phase 1 - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0000e-005	1.9200e-003	3.4000e-004	1.0000e-005	1.3000e-004	1.0000e-005	1.4000e-004	4.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.5074	0.5074	2.0000e-005	0.0000	0.5079
Vendor	2.5000e-004	6.8200e-003	1.7400e-003	2.0000e-005	3.6000e-004	4.0000e-005	4.0000e-004	1.0000e-004	4.0000e-005	1.4000e-004	0.0000	1.4890	1.4890	8.0000e-005	0.0000	1.4910
Worker	6.5100e-003	6.0500e-003	0.0538	1.3000e-004	0.0123	1.0000e-004	0.0125	3.2800e-003	1.0000e-004	3.3800e-003	0.0000	11.4235	11.4235	4.7000e-004	0.0000	11.4353
Total	6.8100e-003	0.0148	0.0559	1.6000e-004	0.0128	1.5000e-004	0.0130	3.4200e-003	1.5000e-004	3.5600e-003	0.0000	13.4199	13.4199	5.7000e-004	0.0000	13.4342

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0947	0.8432	0.6930	1.7000e-003		0.0383	0.0383		0.0368	0.0368	0.0000	146.5494	146.5494	0.0338	0.0000	147.3933
Total	0.0947	0.8432	0.6930	1.7000e-003	1.0000e-005	0.0383	0.0383	0.0000	0.0368	0.0368	0.0000	146.5494	146.5494	0.0338	0.0000	147.3933

Roache Road Well Project - North Central Coast Air Basin, Annual

3.2 Phase 1 - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0000e-005	1.9200e-003	3.4000e-004	1.0000e-005	1.3000e-004	1.0000e-005	1.4000e-004	4.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.5074	0.5074	2.0000e-005	0.0000	0.5079
Vendor	2.5000e-004	6.8200e-003	1.7400e-003	2.0000e-005	3.6000e-004	4.0000e-005	4.0000e-004	1.0000e-004	4.0000e-005	1.4000e-004	0.0000	1.4890	1.4890	8.0000e-005	0.0000	1.4910
Worker	6.5100e-003	6.0500e-003	0.0538	1.3000e-004	0.0123	1.0000e-004	0.0125	3.2800e-003	1.0000e-004	3.3800e-003	0.0000	11.4235	11.4235	4.7000e-004	0.0000	11.4353
Total	6.8100e-003	0.0148	0.0559	1.6000e-004	0.0128	1.5000e-004	0.0130	3.4200e-003	1.5000e-004	3.5600e-003	0.0000	13.4199	13.4199	5.7000e-004	0.0000	13.4342

3.2 Phase 1 - 2021**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0189	0.1626	0.1493	3.7000e-004		7.2000e-003	7.2000e-003		6.9200e-003	6.9200e-003	0.0000	32.2797	32.2797	7.3600e-003	0.0000	32.4638
Total	0.0189	0.1626	0.1493	3.7000e-004	1.0000e-005	7.2000e-003	7.2100e-003	0.0000	6.9200e-003	6.9200e-003	0.0000	32.2797	32.2797	7.3600e-003	0.0000	32.4638

Roache Road Well Project - North Central Coast Air Basin, Annual

3.2 Phase 1 - 2021**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	3.9000e-004	7.0000e-005	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1104	0.1104	0.0000	0.0000	0.1105
Vendor	4.0000e-005	1.3700e-003	3.3000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	3.0000e-005	0.0000	0.3250	0.3250	2.0000e-005	0.0000	0.3254
Worker	1.3300e-003	1.1900e-003	0.0108	3.0000e-005	2.7200e-003	2.0000e-005	2.7400e-003	7.2000e-004	2.0000e-005	7.4000e-004	0.0000	2.4365	2.4365	9.0000e-005	0.0000	2.4388
Total	1.3800e-003	2.9500e-003	0.0112	3.0000e-005	2.9100e-003	2.0000e-005	2.9300e-003	7.7000e-004	2.0000e-005	8.0000e-004	0.0000	2.8719	2.8719	1.1000e-004	0.0000	2.8747

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0189	0.1626	0.1493	3.7000e-004		7.2000e-003	7.2000e-003		6.9200e-003	6.9200e-003	0.0000	32.2797	32.2797	7.3600e-003	0.0000	32.4637
Total	0.0189	0.1626	0.1493	3.7000e-004	1.0000e-005	7.2000e-003	7.2100e-003	0.0000	6.9200e-003	6.9200e-003	0.0000	32.2797	32.2797	7.3600e-003	0.0000	32.4637

Roache Road Well Project - North Central Coast Air Basin, Annual

3.2 Phase 1 - 2021**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	3.9000e-004	7.0000e-005	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1104	0.1104	0.0000	0.0000	0.1105
Vendor	4.0000e-005	1.3700e-003	3.3000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	3.0000e-005	0.0000	0.3250	0.3250	2.0000e-005	0.0000	0.3254
Worker	1.3300e-003	1.1900e-003	0.0108	3.0000e-005	2.7200e-003	2.0000e-005	2.7400e-003	7.2000e-004	2.0000e-005	7.4000e-004	0.0000	2.4365	2.4365	9.0000e-005	0.0000	2.4388
Total	1.3800e-003	2.9500e-003	0.0112	3.0000e-005	2.9100e-003	2.0000e-005	2.9300e-003	7.7000e-004	2.0000e-005	8.0000e-004	0.0000	2.8719	2.8719	1.1000e-004	0.0000	2.8747

3.3 Phase 2 - 2021**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.0000e-004	0.0000	5.0000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1550	1.4524	1.3606	2.6700e-003		0.0739	0.0739		0.0695	0.0695	0.0000	233.3287	233.3287	0.0592	0.0000	234.8083
Total	0.1550	1.4524	1.3606	2.6700e-003	5.0000e-004	0.0739	0.0744	6.0000e-005	0.0695	0.0696	0.0000	233.3287	233.3287	0.0592	0.0000	234.8083

Roache Road Well Project - North Central Coast Air Basin, Annual

3.3 Phase 2 - 2021**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.7000e-004	0.0126	2.3100e-003	4.0000e-005	8.0000e-004	5.0000e-005	8.5000e-004	2.2000e-004	5.0000e-005	2.6000e-004	0.0000	3.5938	3.5938	1.5000e-004	0.0000	3.5974
Vendor	4.1000e-004	0.0126	3.0600e-003	3.0000e-005	7.3000e-004	4.0000e-005	7.7000e-004	2.1000e-004	4.0000e-005	2.5000e-004	0.0000	2.9928	2.9928	1.6000e-004	0.0000	2.9968
Worker	0.0112	0.0101	0.0914	2.3000e-004	0.0230	1.9000e-004	0.0232	6.1200e-003	1.7000e-004	6.3000e-003	0.0000	20.6411	20.6411	7.9000e-004	0.0000	20.6607
Total	0.0120	0.0353	0.0967	3.0000e-004	0.0246	2.8000e-004	0.0248	6.5500e-003	2.6000e-004	6.8100e-003	0.0000	27.2277	27.2277	1.1000e-003	0.0000	27.2549

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.2000e-004	0.0000	2.2000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1550	1.4524	1.3606	2.6700e-003		0.0739	0.0739		0.0695	0.0695	0.0000	233.3284	233.3284	0.0592	0.0000	234.8080
Total	0.1550	1.4524	1.3606	2.6700e-003	2.2000e-004	0.0739	0.0741	3.0000e-005	0.0695	0.0696	0.0000	233.3284	233.3284	0.0592	0.0000	234.8080

Roache Road Well Project - North Central Coast Air Basin, Annual

3.3 Phase 2 - 2021**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.7000e-004	0.0126	2.3100e-003	4.0000e-005	8.0000e-004	5.0000e-005	8.5000e-004	2.2000e-004	5.0000e-005	2.6000e-004	0.0000	3.5938	3.5938	1.5000e-004	0.0000	3.5974
Vendor	4.1000e-004	0.0126	3.0600e-003	3.0000e-005	7.3000e-004	4.0000e-005	7.7000e-004	2.1000e-004	4.0000e-005	2.5000e-004	0.0000	2.9928	2.9928	1.6000e-004	0.0000	2.9968
Worker	0.0112	0.0101	0.0914	2.3000e-004	0.0230	1.9000e-004	0.0232	6.1200e-003	1.7000e-004	6.3000e-003	0.0000	20.6411	20.6411	7.9000e-004	0.0000	20.6607
Total	0.0120	0.0353	0.0967	3.0000e-004	0.0246	2.8000e-004	0.0248	6.5500e-003	2.6000e-004	6.8100e-003	0.0000	27.2277	27.2277	1.1000e-003	0.0000	27.2549

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

Roache Road Well Project - North Central Coast Air Basin, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.0200e-003	5.4600e-003	0.0121	4.0000e-005	2.7900e-003	4.0000e-005	2.8300e-003	7.5000e-004	3.0000e-005	7.8000e-004	0.0000	3.3738	3.3738	1.7000e-004	0.0000	3.3781
Unmitigated	1.0200e-003	5.4600e-003	0.0121	4.0000e-005	2.7900e-003	4.0000e-005	2.8300e-003	7.5000e-004	3.0000e-005	7.8000e-004	0.0000	3.3738	3.3738	1.7000e-004	0.0000	3.3781

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Unrefrigerated Warehouse-No Rail	0.03	0.03	0.03	78	78
Unrefrigerated Warehouse-No Rail	2.52	2.52	2.52	7,357	7,357
Total	2.55	2.55	2.55	7,436	7,436

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Unrefrigerated Warehouse-No Rail	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3
Unrefrigerated Warehouse-No Rail	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Unrefrigerated Warehouse-No Rail	0.543525	0.028472	0.201539	0.126188	0.021864	0.005301	0.018669	0.039782	0.003072	0.002565	0.007028	0.001098	0.000897

Roache Road Well Project - North Central Coast Air Basin, Annual

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1.6715	1.6715	8.0000e-005	2.0000e-005	1.6780
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1.6715	1.6715	8.0000e-005	2.0000e-005	1.6780
NaturalGas Mitigated	1.0000e-005	1.0000e-004	9.0000e-005	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.1125	0.1125	0.0000	0.0000	0.1131
NaturalGas Unmitigated	1.0000e-005	1.0000e-004	9.0000e-005	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.1125	0.1125	0.0000	0.0000	0.1131

Roache Road Well Project - North Central Coast Air Basin, Annual

5.2 Energy by Land Use - NaturalGas**Unmitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Unrefrigerated Warehouse-No Rail	2085	1.0000e-005	1.0000e-004	9.0000e-005	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.1113	0.1113	0.0000	0.0000	0.1119
Unrefrigerated Warehouse-No Rail	22.24	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.1900e-003	1.1900e-003	0.0000	0.0000	1.1900e-003
Total		1.0000e-005	1.0000e-004	9.0000e-005	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.1125	0.1125	0.0000	0.0000	0.1131

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Unrefrigerated Warehouse-No Rail	2085	1.0000e-005	1.0000e-004	9.0000e-005	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.1113	0.1113	0.0000	0.0000	0.1119
Unrefrigerated Warehouse-No Rail	22.24	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.1900e-003	1.1900e-003	0.0000	0.0000	1.1900e-003
Total		1.0000e-005	1.0000e-004	9.0000e-005	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.1125	0.1125	0.0000	0.0000	0.1131

Roache Road Well Project - North Central Coast Air Basin, Annual

5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Unrefrigerated Warehouse-No Rail	5685	1.6538	7.0000e-005	2.0000e-005	1.6603
Unrefrigerated Warehouse-No Rail	60.64	0.0176	0.0000	0.0000	0.0177
Total		1.6715	7.0000e-005	2.0000e-005	1.6780

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Unrefrigerated Warehouse-No Rail	5685	1.6538	7.0000e-005	2.0000e-005	1.6603
Unrefrigerated Warehouse-No Rail	60.64	0.0176	0.0000	0.0000	0.0177
Total		1.6715	7.0000e-005	2.0000e-005	1.6780

6.0 Area Detail**6.1 Mitigation Measures Area**

Roache Road Well Project - North Central Coast Air Basin, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	6.9800e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005
Unmitigated	6.9800e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.0500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.9200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005
Total	6.9700e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005

Roache Road Well Project - North Central Coast Air Basin, Annual

6.2 Area by SubCategory**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.0500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.9200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005
Total	6.9700e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005

7.0 Water Detail**7.1 Mitigation Measures Water**

Roache Road Well Project - North Central Coast Air Basin, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.6648	0.0115	2.8000e-004	1.0339
Unmitigated	0.6648	0.0115	2.8000e-004	1.0339

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Unrefrigerated Warehouse-No Rail	0.3515 / 0	0.6648	0.0115	2.8000e-004	1.0339
Total		0.6648	0.0115	2.8000e-004	1.0339

Roache Road Well Project - North Central Coast Air Basin, Annual

7.2 Water by Land Use**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Unrefrigerated Warehouse-No Rail	0.3515 / 0	0.6648	0.0115	2.8000e-004	1.0339
Total		0.6648	0.0115	2.8000e-004	1.0339

8.0 Waste Detail**8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.2903	0.0172	0.0000	0.7192
Unmitigated	0.2903	0.0172	0.0000	0.7192

Roache Road Well Project - North Central Coast Air Basin, Annual

8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Unrefrigerated Warehouse-No Rail	1.43	0.2903	0.0172	0.0000	0.7192
Total		0.2903	0.0172	0.0000	0.7192

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Unrefrigerated Warehouse-No Rail	1.43	0.2903	0.0172	0.0000	0.7192
Total		0.2903	0.0172	0.0000	0.7192

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

Roache Road Well Project - North Central Coast Air Basin, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

This page intentionally left blank.

Appendix B. Biological Resources Background Information

- California Natural Diversity Database (CNDDDB) Map and Species Table
- Photos of Project Site from May 28, 2020, Field Visit
- U.S. Fish and Wildlife Service IPaC Resource List

This page intentionally left blank.

CNDDDB for the Proposed Project Site

California Natural Diversity
Database (CNDDDB) Commercial
[ds85]

- Plant (80m)
- Plant (specific)
- Plant (non-specific)
- Plant (circular)
- Animal (80m)
- Animal (specific)
- Animal (non-specific)
- Animal (circular)
- Terrestrial Comm. (80m)
- Terrestrial Comm. (specific)
- Terrestrial Comm. (non-specific)
- Terrestrial Comm. (circular)
- Aquatic Comm. (80m)
- Aquatic Comm. (specific)
- Aquatic Comm. (non-specific)
- Aquatic Comm. (circular)
- Multiple (80m)
- Multiple (specific)
- Multiple (non-specific)
- Multiple (circular)
- Sensitive EO's (Commercial only)

1:18,056

0 0.15 0.3 0.6 mi

0 0.25 0.5 1 km

June 12, 2020



CNDDDB for the Proposed Project Site

Scientific Name	Common Name	Life Form	Status (Federal/State/Other)	Habitat	Potential to Occur
Animals					
<i>Accipiter cooperii</i>	Cooper's hawk	Animal	-/-/WL	Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	This occurrence was reported in 2014, and documents a nest in Crestview Park, approximately 1 mile from the project site. No suitable nesting or foraging habitat is located on site.
<i>Bombus occidentalis</i>	western bumble bee	Animal	- / - / S	Once common & widespread, species has declined precipitously from central CA to southern B.C., perhaps from disease.	Occurrence is a general area covering the entire City of Watsonville, recorded in 1959. No suitable habitat occurs on the project site
<i>Emys marmorata</i>	western pond turtle	Animal	-/-/SSC	Marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	No suitable habitat is present on or near the project site. The closest occurrence is a pond near Crestview Park, approximately 1 mile away, and Struve Slough and Pinto Lake, both approximately 1.3 miles away (in opposite directions).
<i>Rana boylei</i>	foothill yellow-legged frog	Animal	-/-/SSC	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Needs at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis.	No suitable habitat is present on or near the project site. The closest occurrence is along Buena Vista Drive at Harkins Slough Road, approximately 2 miles away.
<i>Rana draytonii</i>	California red-legged frog	Animal	T / - / SSC, V	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.	No suitable habitat is present on or near the project site. Most nearby CRLF occurrences are associated with Struve and Watsonville Sloughs, approximately 1.3 miles away. One occurrence is on Buena Vista Drive, 0.3 miles north of Larkin Valley Road.
<i>Riparia riparia</i>	bank swallow	Animal	- / T / S	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	No suitable habitat occurs in or near the project site. This occurrence is a general, broad occurrence recorded in 1962, most likely associated with the banks of the Pajaro River.
Plants					
<i>Arctostaphylos hookeri</i> ssp. <i>hookeri</i>	Hooker's manzanita	Plant	-/E/1B.1	Chaparral, coastal scrub, closed-cone coniferous forest, cismontane woodland. Sandy soils, sandy shales, sandstone outcrops. 30-550 m.	No suitable habitat occurs on or near the project site. Nearest occurrence is 2 miles away; population is on both sides of Hwy 1 between Buena Vista Drive and Mar Monte Ave exits, northwest of Watsonville.
<i>Holocarpha macradenia</i>	Santa Cruz tarplant	Plant	T / E / 1B.1	Coastal prairie, coastal scrub, valley and foothill grassland.	Light, sandy soil or sandy clay; often with nonnatives. 10-220 m.
<i>Plagiobothrys chorisianus</i> var. <i>chorisianus</i>	Choris' popcornflower	Plant	-/-/1B.2	Chaparral, coastal scrub, coastal prairie. Mesic sites. 5-705 m.	This species occurs along the north end of the Watsonville Airport, just across the street from the project site. The population is located 100 ft NW OF junction of runways 2-2- and 8-26. This species is not likely to occur on the project site due to the highly disturbed nature of the soils and vegetation.
<i>Plagiobothrys diffusus</i>	San Francisco popcorn flower	Plant	-/-/1B.2	Valley and foothill grassland, coastal prairie. Historically from grassy slopes with marine influence. 45-360 m.	This species occurs within the northwest quarter of the Watsonville Airport, just across the street from the project site. This species is not likely to occur on the project site due to the highly disturbed nature of the soils and vegetation.
<i>Agelaius tricolor</i>	tricolored blackbird	Animal	-/T/SSC, S, BCC	Highly colonial species, most numerous in Central Valley & vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few km of the colony.	No habitat is present on or near the project site. Nearest occurrences are in freshwater marshes with cattails, tules, and other dense vegetation in Struve Slough, approximately 1.3 miles away from the project site.
Key					
E: Federally Endangered		1B.1: Plants rare, threatened, or endangered in California and elsewhere; Seriously threatened in California			
T: Federally Threatened		1B.2: Plants rare, threatened, or endangered in California and elsewhere; Moderately threatened in California			
S: USFS or BLM Sensitive Species		1B.3: Plants rare, threatened, or endangered in California and elsewhere; Not very threatened in California			
V: IUCN Vulnerable Species					
C: Candidate					
SSC: CDFW Species of Special Concern					
WL: CDFW Watch List					

Photos of the Project Site



1. Photo from northern fence line, middle of the project site, with the new well pump in the background by the four bollards



2. Photo from northern fence line, north end of site.



3. Photo from Roache Road with existing shoulder and landscaping in foreground and portable building on project site in background.

A reconnaissance-level pedestrian survey was conducted by Harris biologists, Shannon Bane and Wendy Young, on May 28, 2020; and the following photos were taken.

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

Santa Cruz County, California



Local office

Ventura Fish And Wildlife Office

☎ (805) 644-1766

📠 (805) 644-3958

2493 Portola Road, Suite B
Ventura, CA 93003-7726

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 species¹ 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 Fisheries²).

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](#).

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.
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

San Joaquin Kit Fox *Vulpes macrotis mutica*

Endangered

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/2873>

Birds

NAME	STATUS
California Least Tern <i>Sterna antillarum browni</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8104	Endangered
Least Bell's Vireo <i>Vireo bellii pusillus</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/5945	Endangered
Marbled Murrelet <i>Brachyramphus marmoratus</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/4467	Threatened
Southwestern Willow Flycatcher <i>Empidonax traillii extimus</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/6749	Endangered
Western Snowy Plover <i>Charadrius nivosus nivosus</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8035	Threatened

Reptiles

NAME	STATUS
San Francisco Garter Snake <i>Thamnophis sirtalis tetrataenia</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5956	Endangered

Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened

California Tiger Salamander *Ambystoma californiense* Threatened
 There is **final** critical habitat for this species. Your location is outside the critical habitat.
<https://ecos.fws.gov/ecp/species/2076>

Santa Cruz Long-toed Salamander *Ambystoma macrodactylum croceum* Endangered
 There is **proposed** critical habitat for this species. The location of the critical habitat is not available.
<https://ecos.fws.gov/ecp/species/7405>

Fishes

NAME	STATUS
Tidewater Goby <i>Eucyclogobius newberryi</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/57	Endangered

Flowering Plants

NAME	STATUS
Marsh Sandwort <i>Arenaria paludicola</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2229	Endangered
Monterey Gilia <i>Gilia tenuiflora</i> ssp. <i>arenaria</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/856	Endangered
Monterey Spineflower <i>Chorizanthe pungens</i> var. <i>pungens</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/396	Threatened
Santa Cruz Tarplant <i>Holocarpha macradenia</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/6832	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

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](#).

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 <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.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 (IF A
BREEDING SEASON IS INDICATED
FOR A BIRD ON YOUR LIST, THE
BIRD MAY BREED IN YOUR
PROJECT AREA SOMETIME WITHIN
THE TIMEFRAME SPECIFIED,

WHICH IS A VERY LIBERAL
ESTIMATE OF THE DATES INSIDE
WHICH THE BIRD BREEDS
ACROSS ITS ENTIRE RANGE.
"BREEDS ELSEWHERE" INDICATES
THAT THE BIRD DOES NOT LIKELY
BREED IN YOUR PROJECT AREA.)

Allen's Hummingbird *Selasphorus sasin*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9637>

Breeds Feb 1 to Jul 15

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.

<https://ecos.fws.gov/ecp/species/1626>

Breeds Jan 1 to Aug 31

Black Turnstone *Arenaria melanocephala*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds elsewhere

Burrowing Owl *Athene cunicularia*

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/9737>

Breeds Mar 15 to Aug 31

Clark's Grebe *Aechmophorus clarkii*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds Jan 1 to Dec 31

Common Yellowthroat *Geothlypis trichas sinuosa*

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>

Breeds May 20 to Jul 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

Lawrence's Goldfinch <i>Carduelis lawrencei</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9464	Breeds Mar 20 to Sep 20
Long-billed Curlew <i>Numenius americanus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/5511	Breeds elsewhere
Marbled Godwit <i>Limosa fedoa</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9481	Breeds elsewhere
Nuttall's Woodpecker <i>Picoides nuttallii</i> 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	Breeds Apr 1 to Jul 20
Oak Titmouse <i>Baeolophus inornatus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9656	Breeds Mar 15 to Jul 15
Rufous Hummingbird <i>selasphorus rufus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8002	Breeds elsewhere
Short-billed Dowitcher <i>Limnodromus griseus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere
Song Sparrow <i>Melospiza melodia</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Feb 20 to Sep 5
Spotted Towhee <i>Pipilo maculatus clementae</i> 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/4243	Breeds Apr 15 to Jul 20

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>

Whimbrel *Numenius phaeopus*

Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9483>

Willet *Tringa semipalmata*

Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

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.

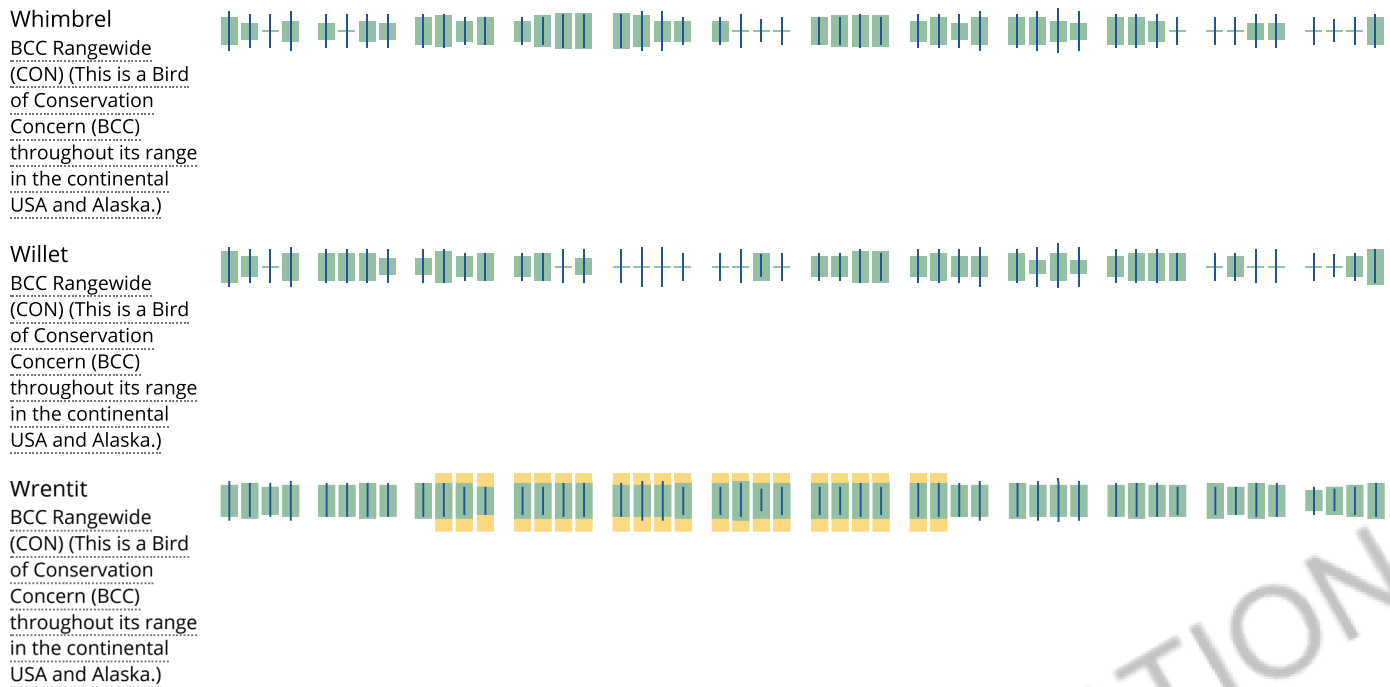
Survey Timeframe

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.









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](#) and/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 migratory birds potentially occurring 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 [AKN Phenology 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 to 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, migrating or present year-round in my project 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 refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). 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

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](#).

THERE ARE NO KNOWN WETLANDS AT THIS LOCATION.

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 tubercid 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.