DRAFT

Initial Study and Mitigated Negative Declaration

City of Manteca
Well 29 TCP Treatment Project

Manteca, California

Lead Agency:

City of Manteca Engineering Department
1001 West Center Drive
Manteca, California 95337

Prepared By:

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS
2525 Warren Drive
Rocklin, California 95677

July 2023

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DRAFT MITIGATED NEGATIVE DECLARATION

Lead Agency: City of Manteca

Project Proponent: City of Manteca Engineering Department

Project Location: 614 El Portal Avenue
Manteca, California 95337

Project Description: The project involves constructing a Granular Activated Carbon (GAC) water treatment system to treat the water produced by Well 29 located in Yosemite Village Park to remove 1,2,3-trichloropropane (TCP) to achieve a treated water concentration that complies with California State Water Resource Control Board (SWRCB) Compliance Order No. 01-10-21R-002. This Order requires compliance with California Code Regulations, Title 22, Section 64444 on or before April 10, 2024. The maximum contaminant level (MCL) for 1,2,3-Trichloropropane (TCP) is 0.005 micrograms per Liter (µg/L). The City is considering two Layout Options as described below.

Layout Option A would place six new 12-foot-diameter GAC treatment vessels directly to the east of the existing well site on a concrete pad measuring 40 by 60-feet. The new GAC system would tie into the existing Well 29 raw water discharge pipe, prior to arsenic treatment, via two new 12-inch pipes that would run approximately 90-feet southwest. The new GAC vessels would discharge backwash waste into an 8-inch pipe running approximately 255-feet from the GAC vessels to the existing backwash tank located adjacent to the arsenic treatment system. The existing site fencing would be continued around the new treatment facility, and two 16-foot sliding gates would be added for maintenance access. The hypochlorite injection point for potable water disinfection would be relocated from the existing wellhead to an above-grade injection point after the GAC treatment system. A connection to the existing sanitary sewer system would be made in the street adjacent to the site with a new sanitary sewer manhole. An additional sanitary sewer manhole and drain lines would be installed onsite for collecting wash water from the backwash process and excess water that must be drained during media change-outs from the GAC delivery truck. Media change outs are completed by sending a water and media slurry from the treatment vessels to the GAC delivery trucks. Excess water must be drained from the trucks after the slurry pumping operation is completed and before the truck may depart. The water utilized to generate the slurry is potable water. The existing driveway would be widened by 14-feet and additional pavement added to accommodate the truck turning radius. Option A would require removal of one ornamental tree located at the southeast corner of the existing Well 29 footprint.

Layout Option B would include the majority of the same infrastructure as Layout Option A but would be located directly north of the existing well site. Due to the location of Option B, a new 16-foot-wide access driveway would be required just north of the new infrastructure. Since this layout option would be placed where the existing basketball court is located, a new basketball court is being proposed east of the existing playground. Option B would not require tree removal as a part of the Proposed Project

Public Review Period: July 14, 2023 to August 14, 2023

Mitigation Measures Incorporated into the Project to Avoid Significant Effects:

Biological Resources

BIO-1: **Nesting Bird Surveys.** Within 14 days prior to construction activities and vegetation removal, a qualified biologist will survey the Project Area and 500 feet adjacent for nesting birds. If an active nest (i.e., containing eggs or young) is observed, the qualified biologist will install a species-specific no-disturbance buffer around the active nest. No Project activities will occur within the no-disturbance buffer until the qualified biologist has determined that the nest is no longer active. If there is a lapse in construction activities of 15 days or more, an additional nesting bird survey shall be conducted prior to reinitiating construction activities.

BIO-2: **Day Roosting Bat Surveys.** The trees and building within the Project Area may provide marginally suitable bat day-roosting habitat for species such as the pallid bat. A bat habitat assessment shall be conducted by a qualified biologist prior to tree removal and construction activities near the existing building. If day roosting bat habitat occurs in trees that will be removed, or within the existing building, a qualified biologist will conduct an evening emergence survey when nighttime low temperatures are above 45°F.

If bats are observed exiting day-roosting habitat during the evening emergence survey, the habitat will be removed/affected outside of the maternity and hibernation season when nighttime low temperatures are above 45°F (typically May 1 through April 15 and September 1 through October 15). Occupied trees will be removed using the two-step removal process under direction from a qualified biologist. If occupied bat day roosting habitat within the existing building will be affected by construction activities, the habitat can be excluded by a qualified biologist outside of the maternity and hibernation season when nighttime low temperatures are above 45°F (typically May 1 through April 15 and September 1 through October 15).

Cultural Resources

CUL-1: **Inadvertent Discovery of Unknown Archaeological Resources and Tribal Cultural Resources.** If prehistoric or historic-era cultural resources are encountered, all construction-related activities within 100 feet shall be immediately halted and the City of Manteca should be notified. Prehistoric archaeological materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil (midden) containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-era materials might include deposits of metal, glass, and/or ceramic refuse. An archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for Archeology, hereafter *qualified archaeologist*, should inspect the findings within 24 hours of discovery. If it is determined that the Project could damage a significant cultural resource, mitigation should be implemented with a preference for preservation in place, consistent with the priorities set forth in CEQA

Guidelines Section 15126.4(b)(3). If avoidance is not feasible, a qualified archaeologist should prepare and implement a detailed treatment plan in consultation with the City of Manteca and, for prehistoric resources, the ethnographically associated Native American tribe(s). If the resource is determined to be a TCR, as defined by PRC 21074, the City of Manteca, in consultation with the ethnographically associated Native American tribe(s), should, if feasible, minimize significant adverse impacts by avoiding the resource or treating the resource with culturally appropriate dignity, which includes protecting the cultural character and integrity of the resource, protecting the traditional use of the resource, and protecting the confidentiality of the resource.

CUL-2: **Inadvertent Discovery of Unknown Human Remains.** In the event of discovery or recognition of any human remains during construction-related activities the provisions of CEQA Guidelines Section 15064.5(e) shall be followed and such activities should cease within 100 feet of the find until the San Joaquin County coroner has been contacted to determine that no investigation of the cause of death is required. If it is determined that the remains are Native American in origin, the NAHC will be contacted within 24 hours. The NAHC will then identify the person it believes to be the Most Likely Descendant (MLD) from the deceased Native American. The MLD would, in turn, make recommendations to the City of Manteca for the appropriate means of treating the human remains and any other items associated with the grave.

Transportation

TRANS-1: Prior to the start of construction of the Project, the City shall require the construction contractor to prepare a Traffic Control Plan. The Traffic Control Plan shall be prepared in accordance with the City's traffic control guidelines and shall contain, at a minimum, the following elements:

- Provide written notice at least 2 weeks prior to the start of construction to owners/occupants along streets affected during construction.
- Signage, striping, delineated detours, flagging operations and any other devices will be used during construction to guide motorists, bicyclists, and pedestrians safely through the construction area and allow for adequate access and circulation.
- Designate detours or alternative routes for bicyclists using affected bicycle lanes as well as for pedestrians using adjacent sidewalks.
- Maintain continuous vehicular and pedestrian access to any affected residential driveways from the public street to the private property line, except where necessary construction precludes such continuous access for reasonable periods of time. Access will be reestablished at the end of the workday. If a driveway needs to be closed or interfered with as described above, the City shall notify the owner or occupant of the closure of the driveway at least 5 working days prior to the closure.

- Ensure that the construction of the Project does not interfere unnecessarily with the work of other agencies such as mail delivery, school buses, and municipal waste services.
- Notify local emergency responders of any planned partial- or full-lane closures or blocked access to roadways or driveways required for Project construction. Emergency responders include fire departments, police departments, and ambulances that have jurisdiction within the Project Area. Written notification and disclosure of lane closure location must be provided at least 30 days prior to the planned closure to allow emergency response providers adequate time to prepare for lane closures.

Tribal Cultural Resources

TCR-1: **Unanticipated Discovery of Tribal Cultural Resources.** If potentially significant TCRs are discovered during ground disturbing activities, all work shall cease within 50 feet of the find. A Native American Representative from traditionally and culturally affiliated Native American Tribes that requested consultation on the Project shall be immediately contacted and invited to assess the significance of the find and make recommendations for further evaluation and treatment, as necessary. If deemed necessary by the City, a qualified cultural resources specialist, who meets the Secretary of Interior's Standards and Qualifications for Archaeology, may also assess the significance of the find in joint consultation with Native American representatives to ensure that Tribal values are considered. Work at the discovery location cannot resume until the City, in consultation as appropriate and in good faith, determines that the discovery is either not a TCR, or has been subjected to culturally appropriate treatment, if avoidance and preservation cannot be accommodated.

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LIST OF ACRONYMS AND ABBREVIATIONS

Term	Definition
µg/L	Micrograms per Liter
ANSI	American National Standards Institute
BAU	Business-as-Usual
BLM	Bureau of Land Management
BMPs	Best Management Practices
BPS	Best Performance Standards
CAA	Clean Air Act
CAL FIRE	California Department of Forestry and Fire Protection
CalEEMod	California Emissions Estimator Model
CAPCOA	California Air Pollution Control Officers Association
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CCIC	Central California Information Center
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CGS	California Geological Survey
CH_4	Methane
CHL	California Historical Landmark
CHP	California Highway Patrol
CHRIS	California Historical Resources Information System
CI	*Coccidioides immitis*
City	City of Manteca Engineering Department
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
CM	*Coccidioidomycosis*
CUPA	Certified Unified Program Agency
cy	Cubic Yard
dB	Decibels
DHS	Department of Health Services
DOC	Department of Conservation
DPM	Diesel Particulate Matter
DTSC	Department of Toxic Substances Control
DWR	Department of Water Resources
EFZ	Earthquake Fault Zone
EIC	Eastern Information Center
EIR	Environmental Impact Report
ESA	Endangered Species Acts
FEMA	Federal Emergency Management Agency

Term	Definition
FTA	Federal Transit Administration
GAC	Granular Activated Carbon
GHG	Greenhouse Gas
GLO	General Land Office
gpm	Gallons Per Minute
HMMP	Hazardous Materials Management Plan
HRA	Health Risk Assessment
IS	Initial Study
kWh	Kilowatt-Hours
L_{dn}	Day-Night Average
L_{eq}	Equivalent Noise Level
LF	Linear Feet
LRA	Local Responsibility Areas
MCL	Maximum Contaminant Level
MGD	Million Gallons per Day
MLD	Most Likely Descendent
MMRP	Mitigation Monitoring and Reporting Plan
MMT	Million Metric Tons
MND	Mitigated Negative Declaration
mph	Miles per Hour
MRZ	Mineral Resource Zones
N_2O	Nitrous Oxide
NAHC	Native American Heritage Commission
ND	Negative Declaration
NIOSH	National Institute for Occupational Safety and Health
NO_x	Nitrogen Oxides
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
O_3	Ozone
OHP	Office of Historic Preservation
PG&E	Pacific Gas & Electric
PHG	Public Health Goal
$PM_{2.5}$	Particulate matter with a diameter of 2.5 microns or less
PM_{10}	Particulate matter with a diameter of 10 microns or less
ppt	Parts Per Trillion
PRC	Public Resources Code
PLC	Programmable Logic Controller
PPV	Peak Particle Velocity
Project	City of Manteca TCP Treatment Project/
RACT	Reasonably Available Control Technology
ROG	Reactive Organic Gases
SB	Senate Bill
SMARA	Surface Mining and Reclamation Act of 1975
SRA	State Responsibility Areas
sf	Square Feet
SIP	State Implementation Plan
SJVAB	San Joaquin Valley Air Basin

Term	Definition
SJVAPCD	San Joaquin Valley Air Pollution Control District
SO_2	Sulfur Dioxide
SRA	Sensitive Receptor Area
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Toxic Air Contaminants
TCP	1,2,3-trichloropropane
TCRs	Tribal Cultural Resources
USDOT	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VFD	Variable Frequency Drive
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compound
WQCF	Manteca Water Quality Control Facility

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1.0 BACKGROUND

1.1 Summary

Project Title:	City of Manteca – Well 29 TCP Treatment Project
Lead Agency Name and Address:	City of Manteca 1001 West Center Street Manteca, California 95337
Contact Person and Phone Number:	Elba Mijango, Associate Engineer 209-456-8460
Project Location:	Yosemite Village Park 614 El Portal Avenue Manteca, California
General Plan Designation:	P-Park
Zoning:	Park (P)

1.2 Introduction

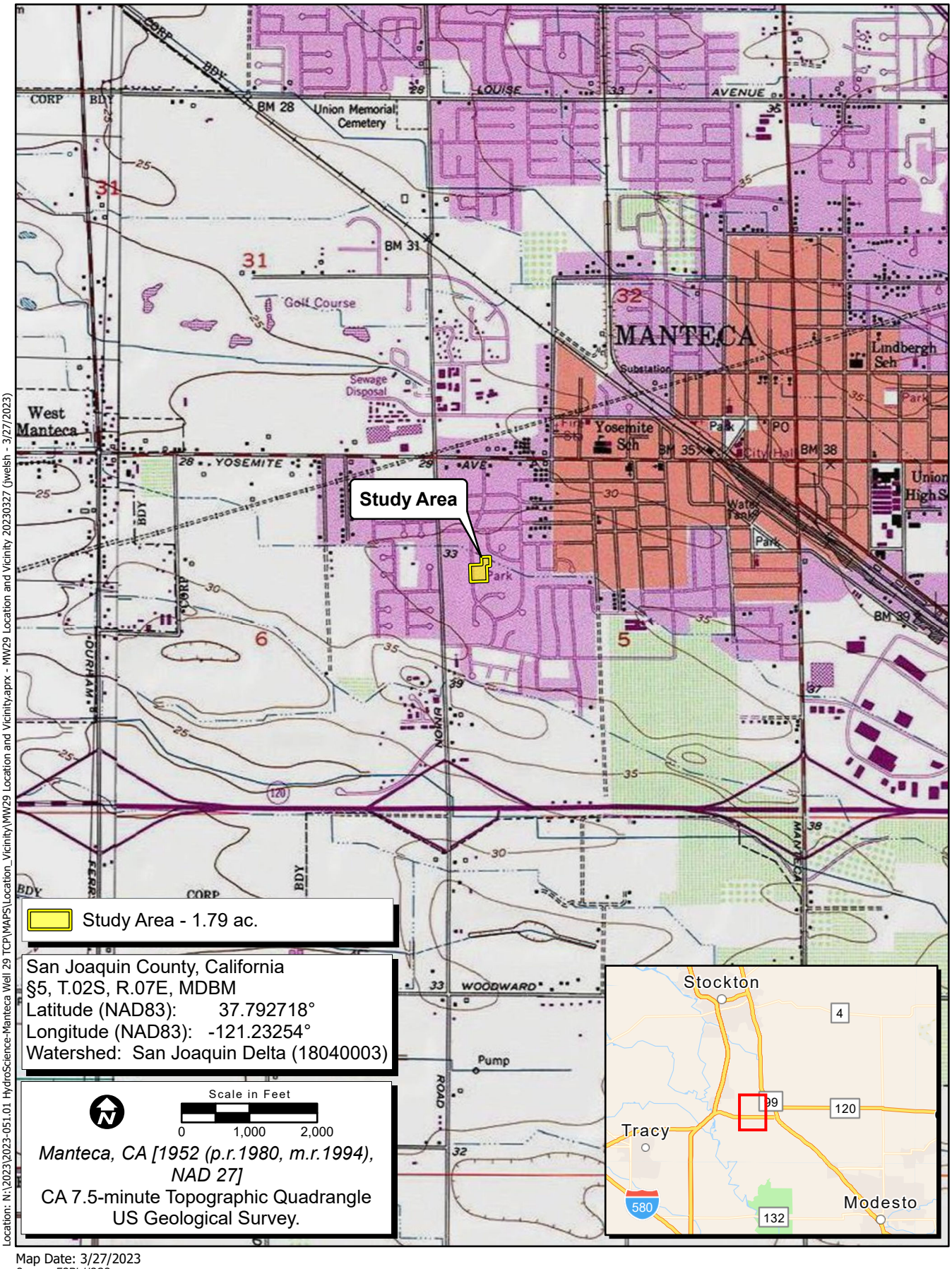
The City of Manteca (City) is the Lead Agency for this California Environmental Quality Act (CEQA) Initial Study (IS). This IS has been prepared to identify and assess the anticipated environmental impacts of the City of Manteca TCP Treatment Project (Project) to satisfy CEQA (Public Resources Code [PRC], Section 21000 et seq.) and state CEQA Guidelines (Title 14, California Code of Regulations [CCR] 15000 et seq.). CEQA requires that all state and local government agencies consider the environmental consequences before approving those projects. The City will use this CEQA IS to determine which CEQA document is appropriate for the Project: Negative Declaration (ND), Mitigated Negative Declaration (MND), or Environmental Impact Report (EIR).

In accordance with CEQA, this IS/MND will be circulated for a 30-day public review and comment period. Written comments on the Draft IS/MND should be submitted to:

City of Manteca Engineering Department
Attn: Elba Mijango
1001 West Center Drive
Manteca, California 95337
tcpmitigation@manteca.gov

1.3 Project Location/Site Characteristics

Well 29 is located at 614 El Portal Avenue in Manteca, California (Figure 1-1) on the west side of Yosemite Village Park. Well 29 was drilled in 2017. The Project Area consists of a small neighborhood park that is regularly mowed and maintained. Low grass covers the majority of the Project Area with landscape trees and shrubs around the perimeter, a small play structure and basketball court to the west, scattered picnic benches, and a preexisting well building located immediately adjacent to the basketball court.



Location: N:\2023\2023-051.01 HydroScience-Manteca Well 29 TCP\MAPS\Location_Vicinity\MW29 Location and Vicinity.aprx - MW29 Location and Vicinity 20230327 (jwelsh - 3/27/2023)

Map Date: 3/27/2023
Sources: ESRI, USGS

Figure 1-1. Project Location and Vicinity

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2.0 PROJECT DESCRIPTION

2.1 Project Background

In August 2009, the California Office of Environmental Health Hazard Assessment established a California Public Health Goal (PHG) for the Synthetic Organic Chemical 1,2,3-trichloropropane (TCP) of 0.0007 µg/L (0.7 Parts Per Trillion [ppt]) based on carcinogenicity, or the ability to produce cancer. This is the second lowest California PHG among all drinking water contaminants. In July 2017, the State Water Resources Control Board (SWRCB) adopted a regulation with a Maximum Contaminant Level (MCL) of 5 ppt (0.005 µg/L) for TCP, which became effective in December 2017.

The City of Manteca has a population of approximately 86,928 people. The City's water system provides potable water to both residential and commercial customers within an approximately 18-square-mile area through approximately 23,436 service connections. The City's entire water supply is extracted from 15 groundwater wells and treated surface water purchased from the South San Joaquin Irrigation District. The City's water is supplied to customers through a water distribution system operated as a single pressure zone.

The City of Manteca Department of Public Works Water Division began sampling the City's groundwater wells for compliance with the TCP in June 2019, and TCP was detected on October 12 and 26, 2020. A Compliance order was issued to the city on April 2, 2021 for TCP treatment by April 10, 2024.

2.2 Project Objectives

The objective of this project is to construct a Granular Activated Carbon (GAC) water treatment system to treat the water produced by Well 29 to remove TCP to achieve a treated water concentration that complies with California SWRCB Compliance Order No. 01-10-21R-002. This Order requires compliance with CCR, Title 22, Section 64444 on or before April 10, 2024. The MCL for TCP is 0.005 µg/L.

2.3 Project Characteristics

The Project Site currently contains a well house, emergency diesel generator, a backwash tank, and two arsenic filter vessels. The filters will continue to be used to remove arsenic. Well 29 is connected at two locations to the distribution system; one connection is located west of the well site at El Portal Avenue and the other connection is located to the east at El Capitan Avenue as shown in Figure 2. Well 29 has a deep well turbine pump that produces 2,000 Gallons Per Minute (gpm) at 50 pounds per square inch. During normal operation, a Variable Frequency Drive (VFD) operates the pump as determined by system demand. The VFD is controlled by a Programmable Logic Controller (PLC). The PLC receives a call to run, then signals the VFD to start the pump and run at the flow rate needed to maintain a preset system pressure. The PLC also starts the sodium hypochlorite metering pump and flow paces the sodium hypochlorite metering pump to match the well flow. A portion of the pump discharge flow is diverted into the arsenic filters through the use of a *blending* valve.

The amount of water to be treated by the arsenic filters has been predetermined, based on the arsenic concentration in the source water and the desired arsenic level in the blended effluent (the water leaving the well facility must have an arsenic concentration <10 Parts per Billion or ug/L).

The Proposed Project has two layout options: Proposed Site Layout- Option A and Alternative Site Layout- Option B. Components of these two options are detailed below and summarized in Table 2-1.

Layout Option A would place six new 12-foot-diameter GAC treatment vessels directly to the east of the existing well site (Figure 2-1) on a concrete pad measuring 40 by 60 feet. The new GAC system would tie into the existing Well 29 raw water discharge pipe, prior to arsenic treatment, via two new 12-inch pipes that would run approximately 90 feet southwest. The new GAC vessels would discharge backwash waste into an 8-inch pipe running approximately 255 feet from the GAC vessels to the existing backwash tank located adjacent to the arsenic treatment system. The existing site fencing would be extended around the new treatment facility, and two 16-foot sliding gates would be added for maintenance access. The hypochlorite injection point for potable water disinfection would be relocated from the existing wellhead to an above-grade injection point after the GAC treatment system. A connection to the existing sanitary sewer system would be made in the street adjacent to the site with a new sanitary sewer manhole. An additional sanitary sewer manhole hole and drain lines would be installed onsite for collecting wash water from the backwash process and excess water that must be drained during media change-outs from the GAC delivery truck. Media change outs are completed by sending a water and media slurry from the treatment vessels to the GAC delivery trucks. Excess water must be drained from the trucks after the slurry pumping operation is completed and before the truck may depart. The water utilized to generate the slurry is potable water. The existing driveway would be widened by 14 feet and additional pavement added to accommodate the truck turning radius. Option A would require removal of one ornamental tree located at the southeast corner of the existing well 29 footprint.

Layout Option B would include the majority of the same infrastructure as Layout Option A but would be located directly north of the existing well site (Figure 2-2). Due to the location of Option B, a new 16-foot-wide access driveway would be required just north of the new infrastructure. Since this Layout Option would be placed where the existing basketball court is located, a new basketball court would be constructed east of the existing playground (Figure 2-2). Option B would not require tree removal as a part of the Proposed Project.

Table 2-1. Proposed Project Components

Layout	New Component or Feature	Size	Within Existing Footprint?
Option A	Concrete pavement	5,700 Square Feet (sf)	No, located adjacent on expanded site within existing City property. All new tanks and fencing would be adjacent to and
	Perimeter fence, iron ornamental, with gates	180 Linear Feet (LF), 7 feet high	
	GAC filter tanks, welded painted steel	Each: 10,000 gallon 18.3 feet tall by 12 feet diameter; quantity of 6	

Table 2-1. Proposed Project Components

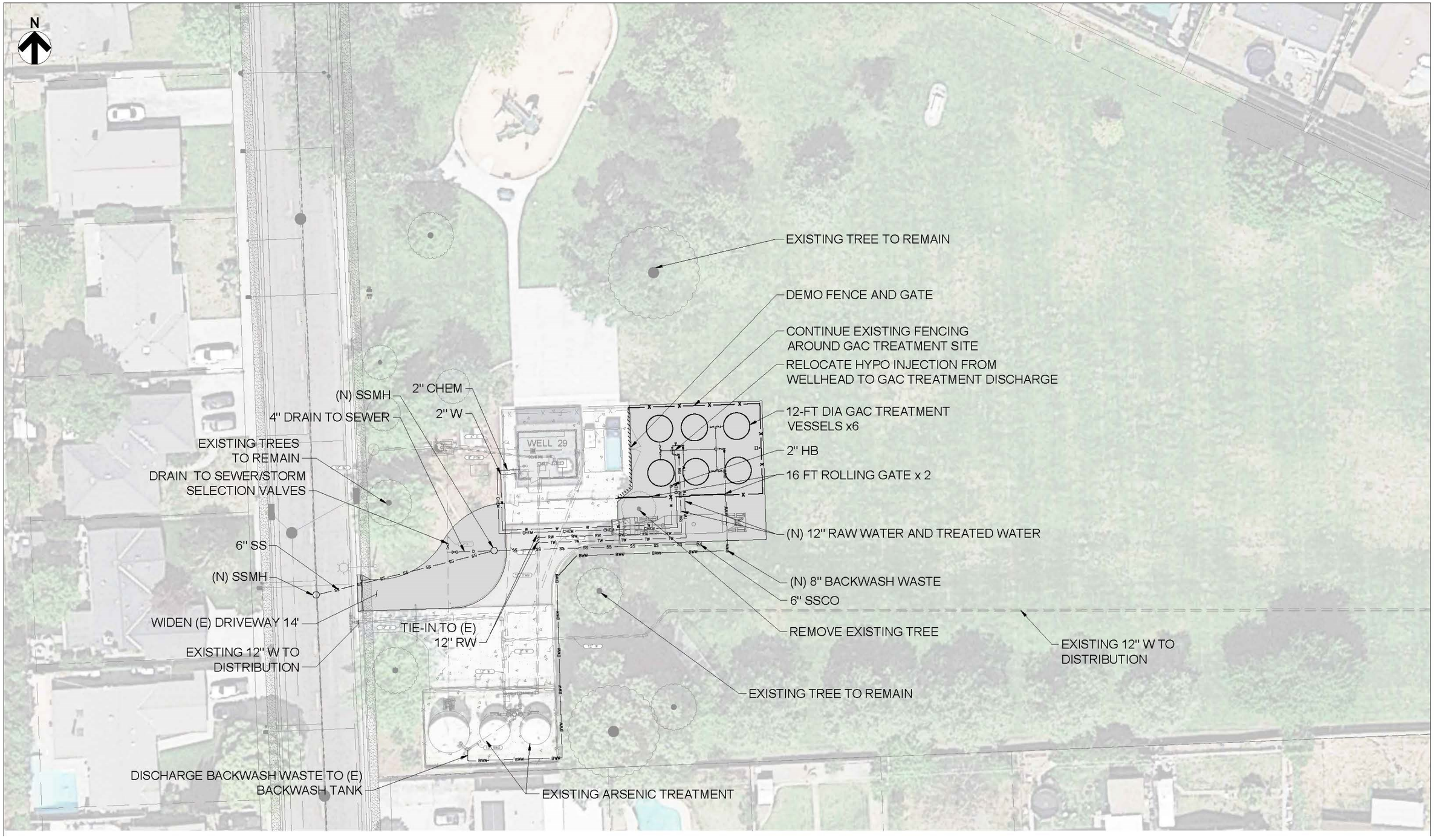
Layout	New Component or Feature	Size	Within Existing Footprint?
	Buried yard piping	8-12 inches diameter, 470 LF	outside of existing fenced area
	Above-grade piping	8-12 in diameter, 120 LF	
	Landscaping	Trees and shrubs around portion of perimeter for screening purposes	
Option B	Concrete pavement	6,800 sf	No, located adjacent on expanded site within existing City property. All new tanks and fencing would be adjacent to and outside of existing fenced area
	Perimeter fence, iron ornamental, with gates	145 (linear feet) LF, 7 feet high	
	GAC filter tanks, welded painted steel	Each: 10,000 gallon 18.3 feet tall by 12 feet diameter; quantity of 6	
	Buried yard piping	8-12 inches diameter, 670 LF	
	Above-grade piping	8-12 inches diameter, 120 LF	
	Landscaping	Trees and shrubs around portion of perimeter for screening purposes	

2.4 Project Timing

Table 2-2 summarizes the proposed construction activities, construction footprint, change in impervious surfaces, estimated construction vehicle trips, equipment and the Project schedule required to implement the project. The information presented in Table 2 represents a conservative estimate of Project construction requirements. Demolition would include removal of some existing landscaping and fencing. Some minor saw-cutting of concrete/curbs would be required for tying in of underground utilities. Off-haul of approximately 50 cubic yards of material is anticipated.

Table 2-2. Proposed Project Components

Layout	Construction Tasks	Disturbance Area		Increase in Impervious Surface (above existing conditions)	Construction Vehicle Trips, Haul/Delivery Truck Trips	Estimated Construction Equipment (Quantity and Duration)	Construction Duration
		Temporary Disturbance Area (Mobilization/ laydown area)	Permanent Disturbance Area				
Option A	• Demolition of landscaping and fences. • Clearing & grubbing. • Site grading. • Underground utility piping. • Underground electrical conduit installation. • Underground piping in public streets. • Concrete forming and rebar placement. • Pouring concrete slabs and footings. • Placement of above ground piping and filter vessels.	33,000 SF	8,100 SF	5,600 SF	• 12 worker vehicles per day • 8 truck trips per day	• Work trucks (2 per day) • Possibly a crane (if not, a boom truck) (1 day) • Backhoe/ skip loader/ front loader (2 weeks) • Concrete trucks (1-2 days) • Concrete pump (1-2 days) • Dump Truck (3 trips) • Vibratory Compaction Equipment	February 2024-August 2024 (6 months)
Option B	Same as above	Same as above	6,900 SF	3,800 SF	Same as above	Same as above	Same as above

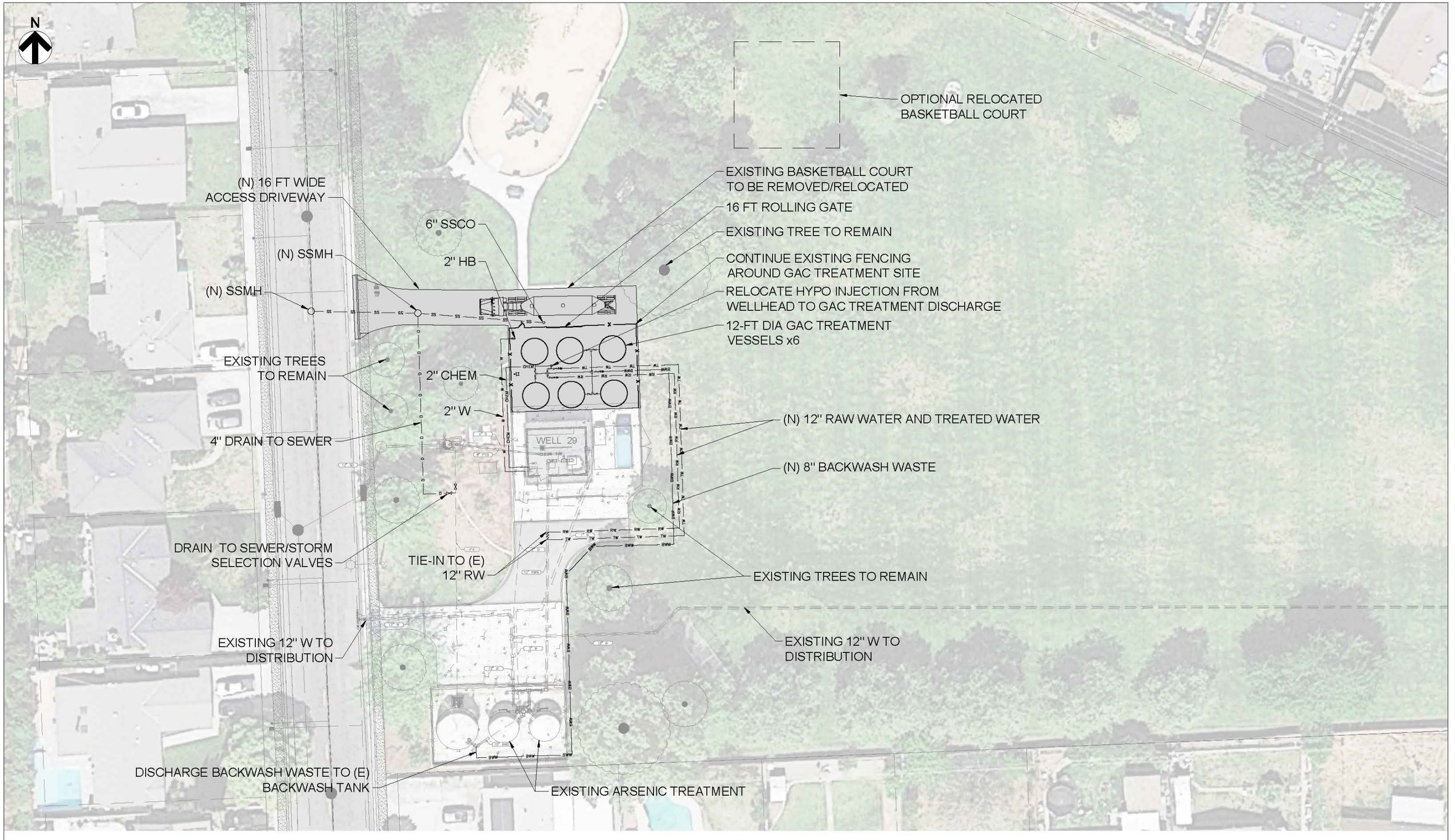


Source: HydroScience Engineers

Figure 2-1. Proposed Site Layout - Option A

2023-051.01 Manteca Well 29 Treatment Project

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Source: HydroScience

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Figure 2-2. Alternative Site Layout - Option B

2023-051.01 Manteca Well 29 Project

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2.5 Regulatory Requirements, Permits, and Approvals

A summary of permits and approvals that could be required for Project implementation is provided below. Further regulatory approvals could be required in the event that local, county, state, or federal agencies determine that specific construction activities require additional permits or approvals.

Federal

- At this time, federal approvals do not appear to be required for project implementation.

State

- SWRCB, Division of Drinking Water: The City's water supply permit would need to be amended to include the addition of wellhead treatment and would require submittal of design plans. An operations plan would need to be submitted that covers the treatment plant.
- State Water Resources Control Board Division of Drinking Water (DDW) System Technical Report

Local

- City of Manteca City Council: adoption of the IS/MND and Mitigation Monitoring and Reporting Plan (MMRP) and approval of project.
- Encroachment Permit
- Hydrant Meter Permit
- Permission and/or Approval from the City for any tree removal.

2.6 Consultation With California Native American Tribe(s)

The City has notified the following California Native American tribes traditionally and culturally affiliated with the geographic area of the Proposed Project: Buena Vista Rancheria of Me-Wuk Indians, California Valley Miwok Tribe, Confederated Villages of Lisjan Nation, Ione Band of Miwok Indians, Muwekma Ohlone Indian Tribe of the SF Bay Area, Northern Valley Yokuts Tribe, Tule River Indian Tribe, Wilton Rancheria, and Wuksache Indian Tribe/Eshom. As of this time, the City has not received responses back nor has any tribe requested consultation pursuant to PRC Section 21080.3.1. Section 4.18 of this IS/MND provides a summary of the notification process.

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3.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED AND DETERMINATION

3.1 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.

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

Determination

On the basis of this initial evaluation:

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

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

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

I find that the 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 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 Project, nothing further is required. ☐

City of Manteca
Kevin Jorgensen II, Director of Engineering/City Engineer

Date

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4.0 ENVIRONMENTAL CHECKLIST AND DISCUSSION

4.1 Aesthetics

4.1.1 Environmental Setting

4.1.1.1 Regional Setting

State Scenic Highways

The California Scenic Highway Program protects and enhances the scenic beauty of California's highways and adjacent corridors. The California Department of Transportation (Caltrans) can designate a highway as scenic based on how much natural beauty can be seen by users of the highway, the quality of the scenic landscape, and if development impacts the enjoyment of the view.

The Project Area is not within a scenic highway corridor (Caltrans 2023).

Community Design Policy

The General Plan does not include any designated scenic resources. However, the Community Design Element in the General Plan considers scenic quality in the context of the community form and quality of the built environment.

Community Design Policy-27 states: *The City shall encourage designs for new construction and renovation in in-fill neighborhoods that are compatible with the adjacent buildings and the existing residential scale and character of the neighborhood.*

4.1.1.2 Visual Character of the Project Site

The visual character of the Well 29 site is defined by the surrounding residential neighborhood and Yosemite Village Park, where the Project Site is located. The park is a small, developed neighborhood park that includes existing well infrastructure, one basketball court, a small playground and swing set, mowed grass field, and scattered picnic tables. The park is lined by numerous large ornamental trees. The park is visible from an approximate 500-foot section of El Portal Avenue (between Tenaya Court and Marion Street) and a 140-foot section of El Capitan Avenue (between Tioga Way and El Capitan Court). Other than those two areas, the park is bordered by 6-foot residential privacy fencing (backyard fencing).

4.1.2 Aesthetics (I) Environmental Checklist and Discussion

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?	☐	☐	☐	☒

No Impact.

Due to the flat urbanized character of the surrounding area and flat topography, there are no scenic vistas of, or within the well site vicinity. Further, due to the flat topography and density of structures and landscaping surrounding the park, the project site is not in the foreground of a distant scenic vista. While the project will make minor visible changes to the infrastructure that is currently onsite, the project will have no effect on a scenic vista.

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
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒

No Impact.

The Project Site is not within view of any designated state or local scenic highways or routes (Caltrans 2023; San Joaquin County 2023). Therefore, the Project would have no impact on designated state, or local, scenic highways.

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
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?	☐	☐	☒	☐

Less Than Significant Impact.

The City of Manteca is considered an urbanized area, as defined in CEQA Guidelines Section 15387, and as mapped by the U.S. Census; thus, considering impacts associated with degradation of existing visual character or quality are considered in the context of the potential to conflict with applicable zoning and other regulations governing scenic quality. The General Plan does not include any designated scenic resources. The Community Design Element of the General Plan considers scenic quality in the context of the community form and quality of the built environment.

The design for the Proposed Project is similar to existing infrastructure already in place at the site. Given the limited General Plan policy or guidance related to scenic quality resources and because the Project Area is within an area of public use; the City, as Lead Agency must consider the potential for the Project to

substantially degrade the existing visual character or quality of public view of the site and surrounding areas as described below.

4.1.2.1 Project Construction

Project construction activities would include equipment and materials staging and laydown; site preparation, consisting of excavation and grading; construction of new facilities; and landscape improvements such as revegetation. Construction activities could be intermittently visible to people traveling along El Portal or El Captain Avenue, but such views of the site would be fleeting and indirect, as travelers would be in motion and focused on their path of travel. Moreover, the work areas and construction materials, to the extent visible, would be temporary and would not conflict with the scale and extent of the houses and other structures in the area and/or the defining characteristic of the City's developed neighborhoods.

As noted in Table 2-2, construction material staging and storage are anticipated to occur entirely within the boundaries of the construction site, which would be closed to the public during Project construction. The work area would be enclosed by chain link fencing. Thus, views of Project construction would be mostly limited to short-range views from areas immediately surrounding the active construction sites. Since the Project Site is a public park, it is possible that people passing through the park would see construction activities; however, considering the small size of the work area, most park visitors would be able to find areas of the park where views were not obstructed by temporary construction equipment or fencing. Given that any adverse effects on the aesthetic character of the park resulting from the presence of construction equipment and associated materials would be temporary and generally limited to the active work areas as people pass the work area, the impact would be less than significant.

4.1.2.2 Project Operation

As described above, the Proposed Project would occur within areas previously developed or disturbed. Upon completion of construction, disturbed areas beyond the Project footprint would be returned to their approximate pre-construction conditions. The changes to the existing site with the addition of treatment facilities would not be considered demonstrably adverse because they would be consistent with existing facilities and uses, as well as the intended purpose of these developed City-owned sites.

While the visual character of the site would be slightly altered, it would be screened with fencing and landscaping, which would limit views of the facility from the surrounding neighborhood and park. The Project Area does not offer notable views to scenic resources as described in Criterion A above, and the General Plan does not include any designated scenic resources. The materials and colors proposed for the major components of the treatment facilities include the following: GAC tanks would be welded, painted steel; exposed piping would be painted steel; and the color for all tanks would be determined from a palette that includes earth tone shades of grey, green, tan or blue based on the surrounding environment.

As described above, the Project would occur in an urbanized area, primarily adjacent to the existing well facility and water infrastructure. Under either option, the site would be designed with visual screening consisting of landscaping and fencing to reduce the visibility of the site from public views and to remain

compatible with the existing character of the surrounding neighborhoods. Therefore, the Project would have a less than significant impact on a scenic vista and applicable zoning or other regulations governing scenic quality.

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
d) Would the Project create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Less Than Significant Impact.

The Proposed Project would not include nighttime construction and there would be no lighting required during the construction phase. As part of the Proposed Project, the GAC treatment plants would have site lighting installed. Lighting would be designed for low light spillover utilizing shields or other light pollution reduction features. Site lighting would be automated with photocells and be provided with dimming controls. The default lighting level would be set to the minimum lighting level required for site security, with the ability for operators to manually and temporarily increase in the event that night work (i.e., operation or maintenance) is required. The need for night operations and maintenance visits is expected to be infrequent due to the low maintenance requirements of this system. Therefore, the Project would not introduce any new sources of light or glare that would adversely affect daytime or nighttime views in the area and the impact would be less than significant.

4.1.3 Mitigation Measures

No significant impacts were identified and no mitigation measures are required.

4.2 Agriculture and Forestry Resources

4.2.1 Environmental Setting

The Project Site is located within the existing Yosemite Village Park and is not located on land that is considered agricultural or forest land and is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Additionally, the site is not zoned for agriculture or forestry use or under Williamson Act contract.

4.2.2 Agriculture and Forestry Resources (II) Environmental Checklist and Discussion

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?	☐	☐	☐	☒

No Impact.

The Project Site is not on land that is designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance according to the California Department of Conservation (DOC) California Important Farmland Finder map; the Proposed Project site is on land that is designated as Urban and Built-Up Land (DOC 2023). Therefore, implementation of the Proposed Project would not convert land designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use and the result would be no impact.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒

No Impact.

The Proposed Project site is not located on land that is zoned for agricultural use or under a Williamson Act contract. Therefore, implementation of the Proposed Project would have no impact on this criterion.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒

No Impact.

The Project Site is zoned as Park (City of Manteca 2018). Furthermore, the site does not conflict with existing zoning for, or would cause rezoning of, forest land, timberland, or timberland-zoned Timberland Production. Therefore, implementation of the Project would have no impact on this criterion.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒

No Impact.

Implementation of the Proposed Project would not result in the loss of forest land or conversion of forest land to non-forest use at any of the Project Sites as no forest lands occur in the Project Area. Therefore, implementation of the Proposed Project would have no impact on this criterion.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

No Impact.

The Proposed 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-agriculture use or conversion of forest land to non-forest use. Refer to discussions under items 2a, 2b, and 2d, indicating that no agricultural or forest land occurs in the Project Area. Further, the purpose of the Project is to improve water quality to meet current water quality standards but does not increase water supply for the City of Manteca and would not result in a change in the environment that could result in the conversion of farmland or forest land to other uses. Therefore, implementation of the Proposed Project would have no impact on this criterion.

4.2.3 Mitigation Measures

No significant impacts were identified and no mitigation measures are required.

4.3 Air Quality

This assessment was prepared using methods and assumptions recommended in the rules and regulations of the San Joaquin Valley Air Pollution Control District (SJVAPCD). Regional and local existing conditions are presented, along with pertinent pollutant emissions standards and regulations. The purpose of this assessment is to estimate criteria air pollutants attributable to the Project and determine the level of impact the Project would have on the environment.

4.3.1 Environmental Setting

The Project Site is located in the City of Manteca. The California Air Resources Board (CARB) divides the state into air basins that share similar meteorological and topographical features. The Proposed Project is located in the San Joaquin Valley Air Basin (SJVAB). The SJVAB occupies the southern two-thirds of the Central Valley. SJVAB is mostly flat, less than 1,000 feet in elevation, and is surrounded on three sides by the Sierra Nevada, Tehachapi, and Coast Range mountains. This bowl-shaped feature forms a natural barrier to the dispersion (spreading over an area) of air pollutants. As a result, the SJVAB is highly susceptible to pollutant accumulation over time.

The climate in the SJVAB is strongly influenced by the presence of mountain ranges. The mountains create a partial rain shadow over the valley and block the free circulation of air, trapping stable air in the valley for extended periods. The climate is semi-arid and is characterized by long, hot, dry summers and cool, wet, and foggy winters. Based on historical data, ambient temperatures range from an average minimum of 39˚F in January to an average maximum of 98˚F in July. The average monthly precipitation is approximately 6.24 inches per year, with January and February averaging 1.35 inches. The average daily wind speed is 5.9 miles per hour (mph). The air flow patterns are characterized by one of four directions depending on the season. For example, during the summer, winds are predominantly northwestern (upvalley), while winters typically feature a prevailing stagnant condition that leads to high incidence of valley fog.

Both the U.S. Environmental Protection Agency (USEPA) and CARB have established ambient air quality standards for common pollutants. These ambient air quality standards establish safe levels of contaminants that avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called criteria pollutants because the health and other effects of each pollutant are described in criteria documents. The six criteria pollutants are Ozone (O_3), Carbon Monoxide (CO), Particulate Matter (PM), Oxides of Nitrogen (NO_x), Sulfur Dioxide (SO_2), and lead. Areas that meet ambient air quality standards are classified as attainment areas, while areas that do not meet these standards are classified as nonattainment areas.

The air quality regulating authority in Manteca is the SJVAPCD, whose primary responsibility is ensuring that the National Ambient Air Quality Standards and California Ambient Air Quality Standards are attained and maintained in the SJVAB, which encompasses Manteca and the Project Site. The City of Manteca, located in San Joaquin County, is designated as a nonattainment for the national standards O_3 and fine particulate matter ($PM_{2.5}$) and designated as a nonattainment area for the state standards of O_3, coarse particulate matter (PM_{10}) and $PM_{2.5}$ (CARB 2022a). The SJVAPCD is responsible for adopting or creating a

comprehensive plan to reduce the emissions of these criteria pollutants. They also enforce rules and regulations, inspect and issue permits for stationary sources of air pollutants, respond to citizen complaints, monitor ambient air quality and meteorological conditions, award grants to reduce motor vehicle emissions, and conduct public education campaigns. The SJVAPCD coordinates work from government agencies, businesses, and private citizens to achieve and maintain healthy air quality.

The following is a list of noteworthy SJVAPCD rules that are required of construction activities associated with the Proposed Project:

- **Regulation IV (Visible Emissions), Rule 4101, Nuisance.** The purpose of this rule is to protect the health and safety of the public from source operations that emit or may emit air contaminants or other materials. It prohibits emissions of air contaminants or other materials "which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public."
- **Regulation IV (Visible Emissions), Rule 4601, Architectural Coatings.** The rule limits Volatile Organic Compound (VOC) emissions from architectural coatings and specifies practices for proper storage, cleanup, and labeling requirements. Rule 4601 applies to "any person who supplies, sells, offers for sale, applies, or solicits the application of any architectural coating, or who manufactures, blends or repackages any architectural coating for use within the District." Materials covered by the rule include adhesives, architectural coatings, paints, varnishes, sealers, stains, concrete curing compounds, concrete/masonry sealers, and waterproofing sealers.
- **Regulation IV (Visible Emissions), Rule 4641, Cutback, Slow Curve and Emulsified Asphalt, Paving and Maintenance Operations.** The purpose of this rule is to limit VOC emissions by restricting the application and manufacturing of certain types of asphalt and maintenance operations and applies to the use of these materials. Specifically, certain types of asphalt cannot be used for penetrating prime coat, dust palliative, or other paving: rapid cure and medium cure cutback asphalt, slow cure asphalt that contains more than 0.5 percent of organic compound, which evaporates at 500˚F or lower, and emulsified asphalt containing VOC in excess of 3 percent, which evaporates at 500˚F or lower.
- **Regulation VIII (Fugitive PM_{10} Prohibitions), Rules 8021–8071, Fugitive PM_{10} Prohibitions.** The purpose of these rules is to limit airborne particulate emissions associated with construction, demolition, excavation, extraction, and other earthmoving activities, as well as with open disturbed land and emissions associated with paved and unpaved roads. Accordingly, these rules include specific measures to be employed to prevent and reduce fugitive dust emissions from anthropogenic sources.
- **Regulation IX (Mobile and Indirect Sources), Rule 9510, Indirect Source Review.** This rule will reduce emissions of NO_x and PM_{10} from new development projects that attract or generate motor vehicle trips. In general, new development contributes to the air pollution problem in the SJVAB by increasing the number of vehicles and vehicle miles traveled. Although newer, cleaner technology is reducing per-vehicle pollution, the emissions increase from new development

partially offsets emission reductions gained from technology advances. Indirect Source Review applies to larger development projects that have not yet gained discretionary approval.

4.3.2 Air Quality (III) Environmental Checklist and Discussion

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?	☐	☐	☐	☒

No impact.

As part of its enforcement responsibilities, the USEPA requires each state with nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the federal standards. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution in nonattainment areas, using a combination of performance standards and market-based programs. The Project region is classified as nonattainment for the federal O_3 and $PM_{2.5}$ standards and is also a nonattainment area for state O_3, $PM_{2.5}$ and PM_{10} standards (CARB 2022a). The USEPA, under the provisions of the Clean Air Act (CAA), requires each state with regions that have not attained the federal air quality standards to prepare a SIP detailing how these standards are to be met in each local area. The SIP is a legal agreement between each state and the federal government to commit resources to improving air quality. It serves as the template for conducting regional and project-level air quality analysis. CARB is the lead agency for developing the SIP in California. Local air districts, such as the SJVAPCD, prepare air quality attainment plans or air quality management plans and submit them to CARB for review, approval, and incorporation into the applicable SIP. The air districts develop the strategies stated in the SIPs for achieving air quality standards on a regional basis.

The SJVAPCD is required, pursuant to the federal CAA, to reduce emissions of criteria pollutants for which the SJVAB is in nonattainment. In order to reduce such emissions, the SJVAPCD prepared the following air quality plans:

- 2004 Extreme Ozone Attainment Demonstration Plan
- 2007 Plan for the 1997 8-Hour Ozone Standard
- 2009 Reasonably Available Control Technology (RACT)
- 2013 Plan for the Revoked 1-Hour Ozone Standard
- 2014 RACT SIP
- 2016 Plan for the 2008 8-Hour Ozone Standard
- 2020 RACT Demonstration for the 2015 8-Hour Ozone Standard
- 2022 Plan for the 2018 8-Hour Ozone Standard

- 2007 PM_{10} Maintenance Plan
- 2008 $PM_{2.5}$ Plan
- 2012 $PM_{2.5}$ Plan
- 2015 Plan for the 1997 $PM_{2.5}$ Standard
- 2016 Moderate Area Plan for the 2012 $PM_{2.5}$ Standard
- 2018 Moderate Area Plan for the 2012 $PM_{2.5}$ Standard

These plans collectively address the air basin's nonattainment status with the national and state O_3 standards as well as particulate matter by establishing a program of rules and regulations directed at reducing air pollutant emissions and achieving state (California) and national air quality standards. Pollutant control strategies are based on the latest scientific and technical information and planning assumptions.

According to the SJVAPCD (2015), the established thresholds of significance for criteria pollutant emissions are based on SJVAPCD New Source Review offset requirements for stationary sources. Stationary sources in the SJVAB are subject to some of the most stringent regulatory requirements in the nation. Emission reductions achieved through implementation of SJVAPCD offset requirements are a major component of SJVAPCD's air quality planning efforts. Thus, projects with emissions below the thresholds of significance for criteria pollutants are determined to "Not conflict or obstruct implementation of the SJVAPCD's air quality plan" (SJVAPCD 2015). As shown in Table 4.3-1, Project construction would not generate emissions that would exceed SJVAPCD significance thresholds and therefore would not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new air quality violations. Additionally, once construction is complete, the Project would not generate quantifiable criteria emissions from Project operations. The Project would not conflict with any applicable air quality plans. There is no impact.

Table 4.3-1. Construction-Related Emissions

Activity	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Pollutant (tons per year)						
Construction Calendar Year One	0.03	0.20	0.22	0.0	0.00	0.00
SJVAPCD Significance Threshold	*10*	*10*	*100*	*27*	*15*	*15*
Exceed SJVAPCD Daily Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Source: CalEEMod Version 2022.1. Refer to Appendix A1 for Model Data Outputs.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐

Less Than Significant Impact.

Emissions associated with Project construction would be temporary and short-term but have the potential to represent a significant air quality impact. Two basic sources of short-term emissions will be generated through Project construction: operation of the heavy-duty equipment (i.e., excavators, loaders, haul trucks) and the creation of fugitive dust during excavation. Construction activities such as excavation and grading operations, construction vehicle traffic, and wind blowing over exposed soils would generate exhaust emissions and fugitive PM emissions that affect local air quality at various times during construction. Effects would be variable depending on the weather, soil conditions, the amount of activity taking place, and the nature of dust control efforts. The dry climate of the area during the summer months creates a high potential for dust generation. Project construction activities would be subject to SJVAPCD Regulation VIII, which specifies the following measures to control fugitive dust:

- Apply water to unpaved surfaces and areas.
- Use nontoxic chemical or organic dust suppressants on unpaved roads and traffic areas.
- Limit or reduce vehicle speed on unpaved roads and traffic areas to a maximum 15 mph.
- Maintain areas in a stabilized condition by restricting vehicle access.
- Install wind barriers.
- During high winds, cease outdoor activities that disturb the soil.
- Keep bulk materials sufficiently wet when handling.
- Store and handle materials in a three-sided structure.
- When storing bulk materials, apply water to the surface or cover the storage pile with a tarp.
- Don't overload haul trucks. Overloaded trucks are likely to spill bulk materials.
- Cover haul trucks with a tarp or other suitable cover. Or, wet the top of the load enough to limit visible dust emissions.
- Clean the interior of cargo compartments on emptied haul trucks prior to leaving a site.
- Prevent trackout by installing a trackout control device.

- Clean up trackout at least once a day. If along a busy road or highway, clean up trackout immediately.
- Monitor dust-generating activities and implement appropriate measures for maximum dust control.

Construction-generated emissions associated with the Proposed Project were calculated using the California Emissions Estimator Model (CalEEMod), version 2022.1.1.12. CalEEMod is a statewide land use emissions computer model designed to quantify potential criteria pollutant emissions associated with both construction and operations from a variety of land use projects. Project construction-generated air pollutant emissions were calculated using CalEEMod model defaults for San Joaquin County as well as construction phasing, timing and equipment provided by the Project proponent. See Appendix A for the assumptions used in this analysis. It is noted that the Project has two layout options. For a conservative analysis, the option disturbing the most area during construction was used in the emission modeling. It is noted that the construction equipment for each layout option is the same.

Predicted daily and maximum emissions attributable to Project construction are summarized in Table 4.3-1. Such emissions are short-term and of temporary duration, lasting only as long as Project construction activities occur, but would be considered a significant air quality impact if the volume of pollutants generated exceeds the SJVAPCD's thresholds of significance.

As shown in Table 4.3-1, construction-related emissions would not exceed thresholds established by the SJVAPCD or result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard. The impact is less than significant.

In addition to the SJVAPCD criteria air pollutant thresholds, SJVAPCD Rule 9510, Indirect Source Review, aims to fulfill the SJVAPCD's emission reduction commitments in the PM_{10} and Ozone Attainment Plans. This rule applies to the following construction projects within the jurisdiction of the SJVAPCD:

- 50 residential units,
- 2,000 sf of commercial space,
- 25,000 sf of light industrial space,
- 100,000 sf of heavy industrial space,
- 20,000 sf of medical office space,
- 39,000 sf of general office space,
- 9,000 sf of educational space,
- 10,000 sf of government space,
- 20,000 sf of recreational space, or
- 9,000 sf of space not identified above.

This rule also applies to any transportation or transit project where construction exhaust emissions equal or exceed 2 tons of NO_x 2 tons of PM_{10}.

Since the Project does not include the construction of a permanent building and is not a transportation project, the Proposed Project would not be required to comply with this rule.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐

Less than significant impact.

Sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis. The nearest sensitive receptors to the Project Site are single-family homes fronting El Portal Avenue and Tenaya Court located south and west of the Project Site.

4.3.2.1 Construction-Generated Air Contaminants

Construction of the Project would result in temporary, short-term Proposed Project-generated emissions of Diesel Particulate Matter (DPM), Reactive Organic Gasses (ROGs), NO_x, CO, and PM_{10} from the exhaust of off-road, heavy-duty diesel equipment for Project construction; soil hauling truck traffic; paving; and other miscellaneous activities. The portion of the SJVAB that encompasses the Project Area is designated as nonattainment for the federal O_3 and $PM_{2.5}$ standards and is also a nonattainment area for state O_3, $PM_{2.5}$ and PM_{10} standards (CARB 2022a). Thus, existing O_3 $PM_{2.5}$, and PM_{10} levels in the SJVAB are at unhealthy levels during certain periods. However, as shown in Table 4.3-1, the Project would not exceed the SJVAPCD significance thresholds for construction emissions and therefore no regional health effects from Project criteria pollutants would occur.

Per SJVAPCD guidance, this analysis employs the SJVAPCD Prioritization Calculator health risk screening tool to assess the potential health risk-related effects of Project construction. The SJVAPCD Prioritization Calculator identifies a Prioritization score based on the Project emission potency at the vicinity sensitive residential receptors. A prioritization score of 10 or greater, as determined by this screening protocol, is potentially significant and indicates that mitigation should be imposed, or a detailed Health Risk Assessment should be performed.

In addition to cancer risk, the significance thresholds for TAC exposure requires an evaluation of non-cancer risk stated in terms of a hazard index. A chronic hazard index of 1.0 is considered individually significant. It should be noted that there is no acute health hazard for DPM, which is the only significant

air toxic associated with construction for this Project. Thus, the maximum acute index for construction of the Project is zero.

The calculated carcinogenic risk and highest maximum chronic hazard indexes at the nearby sensitive residential receptors due to Project construction are depicted in Table 4.3-2.

Table 4.3-2. Health Risk Summary

Exposure Scenario	Maximum Cancer Risk at Residence	Maximum Chronic Hazard Index at Residence	Maximum Acute Hazard Index at Residence
Project Construction	0.01	0.0002	0.00
SJVAPCD Screening Threshold	*10.0*	*1.0*	*1.0*
Exceed SJVAPCD Screening Threshold?	**No**	**No**	**No**

Source: SJVAPCD Prioritization Calculator. Refer to Appendix A2 for Model Data Outputs.

As shown in Table 4.3-2, impacts related to both cancer risk and non-cancer risk (chronic and acute hazard indexes) because of Project construction would not surpass the screening thresholds at the nearest permanent, offsite sensitive residential receptors. Therefore, Project construction would not result in a potentially significant contribution to regional concentrations of nonattainment pollutants and would not result in a significant contribution to the adverse health impacts associated with those pollutants.

Valley Fever

Coccidioidomycosis (CM), often referred to as San Joaquin Valley Fever or Valley Fever, is one of the most studied and oldest known fungal infections. Valley Fever most commonly affects people who live in hot dry areas with alkaline soil and varies with the season. This disease, which affects both humans and animals, is caused by inhalation of arthroconidia (spores) of the fungus *Coccidioides immitis* (CI). CI spores are found in the top few inches of soil and the existence of the fungus in most soil areas is temporary. The cocci fungus (an organism that grows and feeds on dead or decaying organic matter) lives as a saprophyte in dry, alkaline soil. When weather and moisture conditions are favorable, the fungus *blooms* and forms many tiny spores that lie dormant in the soil until they are stirred up by wind, vehicles, excavation, or other ground-moving activities and become airborne. Agricultural workers, construction workers, and other people who work outdoors and who are exposed to wind and dust are more likely to contract Valley Fever. Children and adults whose hobbies or sports activities expose them to wind and dust are also more likely to contract Valley Fever. After the fungal spores have settled in the lungs, they change into a multicellular structure called a spherule. Fungal growth in the lungs occurs as the spherule grows and bursts, releasing endospores, which then develop into more spherules.

Valley fever (CM) is found in California, including San Joaquin County. In about 50 to 75 percent of people, valley fever causes either no symptoms or mild symptoms and those infected never seek medical care; when symptoms are more pronounced, they usually present as lung problems (i.e., cough, shortness

of breath, sputum production, fever, and chest pains). The disease can progress to chronic or progressive lung disease and may even become disseminated to the skin, lining tissue of the brain (meninges), skeleton, and other body areas.

The fungal spores get into the air when soil containing this fungus is disturbed by ground-disturbing activities such as digging or grading, by vehicles raising dust, or by the wind. When people breathe the spores into their lungs, they may get valley fever. Fungal spores are small particles that can grow and reproduce in the body. The highest infection period for valley fever occurs during the driest months in California, between June and November. Infection from valley fever during ground-disturbing activities can be partially mitigated through the control of Project-generated dust. As noted, Project-generated dust would be controlled by adhering to SJVAPCD dust-reducing measures (Regulation VIII), which includes the preparation of a SJVAPCD-approved dust control plan describing all fugitive dust control measures that are to be implemented before, during, and after any dust-generating activity.

With minimal site grading (mass grading is not required for the installation of treatment facility) and conformance with SJVAPCD Regulation VIII, dust from the construction of the Project would not add significantly to the existing exposure level of people to this fungus, including construction workers. In summary, Project construction would not result in a potentially significant contribution to regional concentrations of nonattainment pollutants and would not result in a significant contribution to the adverse health impacts associated with those pollutants.

4.3.2.2 Operational Air Contaminants

Operation of the Proposed Project would not result in the development of any substantial sources of air toxins. There would be no stationary sources associated with Project operations; nor would the Project attract additional mobile sources that spend long periods queuing and idling at the site. Onsite Project emissions would not result in significant concentrations of pollutants at any sensitive receptors. Therefore, the Project would not be a substantial source of Toxic Air Contaminants (TAC). The Project will not result in a high carcinogenic or non-carcinogenic risk during operation.

This impact would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

Less Than Significant Impact.

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

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another. It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word *strong* to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

During construction, the Proposed Project presents the potential for generation of objectionable odors in the form of diesel exhaust in the immediate vicinity of the site. However, these emissions are short-term in nature and will rapidly dissipate and be diluted by the atmosphere downwind of the emission sources. Additionally, odors would be localized and generally confined to the construction area. Therefore, construction odors would not adversely affect a substantial number of people to odor emissions.

Land uses commonly considered to be potential sources of obnoxious odorous emissions include agriculture (farming and livestock), wastewater treatment plants, food processing plants, chemical plants, composting facilities, refineries, landfills, dairies, and fiberglass molding. The Proposed Project does not include any uses identified as being associated with odors.

This impact would be less than significant.

4.3.3 Mitigation Measures

No significant impacts were identified and no mitigation measures are required.

4.4 Biological Resources

This section is based on the analysis and recommendations presented in the Biological Resources Evaluation prepared for the Proposed Project (ECORP 2023, Appendix B).

4.4.1 Environmental Setting

The Project Area consists of a regularly mowed and maintained suburban park. Low grass covers the majority of the Project Area with landscape trees and shrubs around the perimeter. A preexisting well building is located within the Project Area.

4.4.1.1 Aquatic Resources

The U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) was reviewed to determine if any previously identified aquatic resources occur within the Project footprint. There are no indications of the presence of waters or wetlands on aerial photographs or street view photographs of the Project footprint, based on a review back to 1993 (Google, Inc. 2019). The reviewed sources (i.e., NWI, U.S. Geological Survey [USGS] topographic maps, aerial photographs) indicate there are no state or federally protected wetlands or waters in the project footprint.

4.4.1.2 Special-status Species

Special-status species are regulated under the state and federal Endangered Species Acts or other regulations or are species that are considered sufficiently rare by the scientific community to qualify for such listing. A list of special-status species with the potential to occur within the vicinity of the Project Site was compiled based on data contained in the California Natural Diversity Database (CNDDB, California Department of Fish and Wildlife [CDFW] 2023), the USFWS list of federal Endangered and Threatened Species that may occur in or may be affected by the Proposed Project (USFWS 2023), and the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (CNPS 2023). Table 1 of Appendix B lists all special-status plant and animal species identified from the database queries and literature review. Included in this table are the listing status for each species, a brief habitat description, approximate flowering period for plants and survey period for animals, and a determination on the potential to occur onsite.

4.4.2 Biological Resources (IV) Environmental Checklist and Discussion

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 Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐

Less Than Significant With Mitigation Incorporated.

Special-status species and their habitats that may be affected either directly or indirectly through implementation of the Proposed Project include nesting birds regulated by the federal Migratory Bird Treaty Act such as white tailed kite (*Elanus leucurus*), Nuttall's woodpecker (*Picoides nuttallii*), yellow-billed

magpie (*Pica nuttallii*), Oak titmouse (*Baeolophus inornatus*), loggerhead shrike (*Lanius ludovicianus*), and bullock's oriole (*Icterus bullockii*). The Project Site and the immediate vicinity have the potential to support nesting birds. Depending on species, birds may nest in trees, shrubs, structures, signs/poles, and in or on the ground. Direct impacts on active nests could occur during initial Project activities such as clearing and grubbing, and tree removal. Nesting birds could be adversely affected if active nesting, roosting, or foraging sites are either removed or exposed to a substantial increase in noise or human presence during Project activities. The impact would be less than significant if construction activities occur during the non-breeding season (i.e., from September 1 through January 31). However, construction activities conducted during the breeding season between February 1 and August 31 could adversely affect nesting birds and result in a potentially significant impact. Implementation of Mitigation Measure BIO-1 would reduce impacts to these species to less than significant.

Additionally, the trees and building within the Project Area may provide marginally suitable bat day-roosting habitat for species such as the pallid bat (*Antrozous pallidus*). Construction activities and noise from construction activities could impact bats roosting nearby. Therefore, implementation of Mitigation Measure BIO-2 is required to reduce impacts to these species to less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☐	☒

No Impact.

There are no riparian habitats or other sensitive natural communities in or near the Project footprint based on a review of CNDDB (CDFW 2023), aerial photographs, and street-view photographs (Google, Inc. 2023). Therefore there would be no impact.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒

No Impact.

There are no wetlands in or near the Project footprint based on a review of NWI (USFWS 2023), aerial photographs, and street-view photographs (Google, Inc., 2023); therefore, there would be no impact.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒

No Impact.

The Proposed Project would not interfere with the movement of wildlife or fish. The Project is in an urbanized area. The Project would not impact any potential wildlife movement corridors through the urbanized area; therefore, there would be no impact.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐

Less Than Significant Impact.

The Proposed Project would remove one tree for Option A and would not require tree removal for Option B. City of Manteca, California Municipal Code Title 12 Streets, Sidewalks and Public Places Chapter 12.08 Trees and Shrubs Subsection 12.08.070 addresses Tree trimming and removal and states:

> "No person shall cut, prune, remove, injure or interfere with any tree, shrub, or plant upon or in any street tree area or other public place in the city without prior permission and approval therefore from the director. The director is authorized to grant such permission at his or her discretion and where necessary."

As stated in Section 2.5, the Proposed Project would gain all applicable permissions/approvals for any tree removal activities from the City Director. Therefore, the Project has a less than significant impact on local policies and ordinances regarding biological resources because it does not conflict with any local policies or ordinances and includes replacement trees for those removed.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

No Impact.

The San Joaquin County Multi-Species Habitat Conservation and Open Space plan (SJMSCP) is an adopted County-wide Habitat Conservation Plan/Natural Community Conservation Plan. The City of Manteca is a party to the SJMSCP. Mitigation Measure BIO-1 requires this project to implement similar survey and avoidance measures for nesting birds. The project would not conflict with the SJMSCP. There are no other adopted HCPs in the Project Area.

4.4.3 Mitigation Measures

BIO-1: **Nesting Bird Surveys.** Within 14 days prior to construction activities and vegetation removal, a qualified biologist will survey the Project Area and 500 feet adjacent for nesting birds. If an active nest (i.e., containing eggs or young) is observed, the qualified biologist will install a species-specific no-disturbance buffer around the active nest. No Project activities will occur within the no-disturbance buffer until the qualified biologist has determined that the nest is no longer active. If there is a lapse in construction activities of 15 days or more, an additional nesting bird survey shall be conducted prior to reinitiating construction activities.

BIO-2: **Day Roosting Bat Surveys.** The trees and building within the Project Area may provide marginally suitable bat day-roosting habitat for species such as the pallid bat. A bat habitat assessment shall be conducted by a qualified biologist prior to tree removal and construction activities near the existing building. If day roosting bat habitat occurs in trees that will be removed, or within the existing building, a qualified biologist will conduct an evening emergence survey when nighttime low temperatures are above 45°F.

If bats are observed exiting day-roosting habitat during the evening emergence survey, the habitat will be removed/affected outside of the maternity and hibernation season when nighttime low temperatures are above 45°F (typically May 1 through April 15 and September 1 through October 15). Occupied trees will be removed using the two-step removal process under direction from a qualified biologist. If occupied bat day roosting habitat within the existing building will be affected by construction activities, the habitat can be excluded by a qualified biologist outside of the maternity and hibernation season when nighttime low temperatures are above 45°F (typically May 1 through April 15 and September 1 through October 15).

4.5 Cultural Resources

ECORP Consulting, Inc. prepared a Cultural Resources Due Diligence Review (ECORP 2023) for the Proposed Project to determine if cultural resources were present in or adjacent to the Project Area and assess the sensitivity of the Project Area for undiscovered or buried cultural resources. Cultural resources include prehistoric archaeological sites, historic archaeological sites, and historic structures, and generally consist of artifacts, food waste, structures, and facilities made by people in the past. Prehistoric archaeological sites are places that contain the material remains of activities carried out by the native population of the area (i.e., Native Americans) prior to the arrival of Europeans in Southern California. Places that contain the material remains of activities carried out by people during the period when written

records were produced after the arrival of Europeans are considered historic archaeological sites. Historic structures include houses, garages, barns, commercial structures, industrial facilities, community buildings, and other structures and facilities that are more than 50 years old. Historic structures may also have associated archaeological deposits, such as abandoned wells, cellars, privies, refuse deposits, and foundations of former outbuildings.

The information provided below is an abridged version of the Cultural Resources Due Diligence Review and is included here to provide a brief context of the potential cultural resources in the Project Area. Due to the sensitive nature of cultural resources and their records and documentation, which are restricted from public distribution by state and federal law, the IS/MND appendices do not include the cultural resources report; however, all pertinent information necessary for impact determinations is included in this section.

4.5.1 Environmental Setting

The Project Area consists of approximately 1.79 acres of land located in the southwestern corner of Yosemite Village Park on El Portal Avenue in the City of Manteca, San Joaquin County, California. The property is in the southwestern quarter of the northwestern quarter of Section 5, Township 2 South, Range 7 East, Mount Diablo Base and Meridian, as depicted on the 1952 (photorevised 1980, minor revision 1994) "Manteca, California" U.S. Geological Survey 7.5-minute topographic quadrangle map (Figure 1-1). It is also known as Assessor's Parcel Number 219-090-10.

4.5.2 Sources Reviewed

ECORP requested a records search for the property at the Central California Information Center (CCIC) of the California Historical Resources Information System at California State University, Stanislaus on March 27, 2023 (CCIC Search #CC12490L; Appendix C). The purpose of the records search was to determine the extent of previous surveys within a 0.5-mile (800-meter) radius of the Proposed Project location, and whether previously documented pre-contact or historic archaeological sites, architectural resources, or traditional cultural properties exist within this area. CCIC staff completed and returned the records search to ECORP on March 28, 2023.

In addition to the official records and maps for archaeological sites and surveys in San Joaquin County, ECORP also reviewed the following historic references: Built Environment Resource Directory (California Office of Historic Preservation [OHP] 2020); Historic Property Data File for San Joaquin County (OHP 2012); the National Register Information System (National Park Service 2023); Office of Historic Preservation, California Historical Landmarks (CHL; OHP 2022); CHL (OHP 1996 and updates); California Points of Historical Interest (OHP 1992 and updates); Directory of Properties in the Historical Resources Inventory (1999); Caltrans Local Bridge Survey (Caltrans 2019); Caltrans State Bridge Survey (Caltrans 2018); and Historic Spots in California (Kyle 2002). ECORP also reviewed geologic maps and soils data to assess buried site potential.

Other references examined include a RealQuest Property Search and historic General Land Office (GLO) land patent records (Bureau of Land Management [BLM] 2022). In addition, ECORP reviewed the following maps:

- 1855 BLM GLO Plat map for Township 2 South, Range 7 East;
- 1914 USGS Manteca, California topographic quadrangle map (1:31,680 scale);
- 1952 USGS Manteca, California topographic quadrangle map (1:24,000 scale);
- 1952 (photorevised 1976) USGS Manteca, California topographic quadrangle map (1:24,000 scale); and
- 1952 (photorevised 1980, minor revision 1994) USGS Manteca, California topographic quadrangle map (1:24,000 scale).

ECORP reviewed aerial photographs taken in 1957, 1968, 1982, 1993, 2005, 2017, 2018, and 2020 for any indications of property usage and built environment.

ECORP contacted the California Native American Heritage Commission (NAHC) on March 27, 2023 to request a search of the Sacred Lands File for the Project Area (Appendix C). This search determines whether the California Native American tribes within the Project Area have recorded Sacred Lands because the Sacred Lands File is populated by members of the Native American community with knowledge about the locations of tribal resources. In requesting a search of the Sacred Lands File, ECORP solicited information from the Native American community regarding Tribal Cultural Resources (TCRs), but the responsibility to formally consult with the Native American community lies exclusively with the federal and local agencies under applicable state and federal laws. The lead agencies do not delegate government-to-government authority to any private entity to conduct tribal consultation.

4.5.3 Cultural Resources (V) Environmental Checklist and Discussion

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 §15064.5?	☐	☐	☐	☒

No Impact.

CEQA Guidelines Section 15064.5 requires the lead agency to consider the effects of a project on historical resources. A historical resource is defined as any building, structure, object, site, or district listed in or determined to be eligible for listing in the California Register of Historical Resources or determined by a lead agency to be significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, or cultural annals of California. The following discussion focuses on architectural and structural resources. Archaeological resources, including those that qualify as historical resources according to CEQA Guidelines Section 15064.5, are addressed under criterion b.

Results of the literature and map review revealed that the property was used for agriculture prior to 1960 but was developed into a municipal park sometime between 1957 and 1968 as the city limits of Manteca expanded through the area. Further improvements were made, which began in 2017 with the installation

of the well and filtration system (ECORP 2023). No cultural resources have been previously identified within the Project Area, and the only previous study within the Project Area did not include a pedestrian survey and was conducted more than 20 years ago using methods and under conditions that are now considered obsolete; therefore, the Project would result in no impact to historical resources.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐

Less Than Significant With Mitigation Incorporated.

As part of the determination made pursuant to PRC Section 21080.1, the lead agency shall determine whether the Project may have a significant effect on archaeological resources. A significant effect would occur if a project would cause a substantial adverse change to an archaeological resource through physical demolition, destruction, relocation, or alteration of the resource.

As described above in (a), The Project Site was developed into a park sometime between 1957 and 1968 and further improvements took place in 2017 with the installation of the existing well and filtration system. Additionally, no cultural resources have been previously identified within the Project Area. Based on the environmental context and previous disturbance, it is unlikely that the Project would have an impact on cultural resources. However, since there is always a low potential that unknown archaeological resources would be discovered during Project implementation, Mitigation Measure CUL-1: Inadvertent Discovery of Unknown Archaeological Resources and Tribal Cultural Resources, would reduce impacts potential impacts to unknown archaeological resources to less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

Less Than Significant With Mitigation Incorporated.

The records search and background research indicated that no human remains are known to exist at the Project Site. The proposed Project is not anticipated to impact human remains, including those interred outside of formal cemeteries. While unlikely, if any previously unknown human remains are encountered during ground disturbing activities, impacts to the human remains resulting from the Project could be potentially significant. Any potential significant impacts would be reduced to a less than significant level by implementation of Mitigation Measures CUL-2: Inadvertent Discovery of Unknown Human Remains.

4.5.4 Mitigation Measures

CUL-1: **Inadvertent Discovery of Unknown Archaeological Resources and Tribal Cultural Resources.** If prehistoric or historic-era cultural resources are encountered, all construction-related activities within 100 feet shall be immediately halted and the City of Manteca should be notified. Prehistoric archaeological materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil (midden) containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-era materials might include deposits of metal, glass, and/or ceramic refuse. An archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for Archeology, hereafter *qualified archaeologist*, should inspect the findings within 24 hours of discovery. If it is determined that the Project could damage a significant cultural resource, mitigation should be implemented with a preference for preservation in place, consistent with the priorities set forth in CEQA Guidelines Section 15126.4(b)(3). If avoidance is not feasible, a qualified archaeologist should prepare and implement a detailed treatment plan in consultation with the City of Manteca and, for prehistoric resources, the ethnographically associated Native American tribe(s). If the resource is determined to be a TCR, as defined by PRC 21074, the City of Manteca, in consultation with the ethnographically associated Native American tribe(s), should, if feasible, minimize significant adverse impacts by avoiding the resource or treating the resource with culturally appropriate dignity, which includes protecting the cultural character and integrity of the resource, protecting the traditional use of the resource, and protecting the confidentiality of the resource.

CUL-2: **Inadvertent Discovery of Unknown Human Remains.** In the event of discovery or recognition of any human remains during construction-related activities the provisions of CEQA Guidelines Section 15064.5(e) shall be followed and such activities should cease within 100 feet of the find until the **San Joaquin** County coroner has been contacted to determine that no investigation of the cause of death is required. If it is determined that the remains are Native American in origin, the NAHC will be contacted within 24 hours. The NAHC will then identify the person it believes to be the Most Likely Descendant (MLD) from the deceased Native American. The MLD would, in turn, make recommendations to the City of Manteca for the appropriate means of treating the human remains and any other items associated with the grave.

4.6 Energy

4.6.1 Environmental Setting

California relies on a regional power system comprised of a diverse mix of natural gas, renewable, hydroelectric, and nuclear generation resources. Natural gas provides California with a majority of its electricity followed by renewables, large hydroelectric and nuclear (California Energy Commission 2022). Pacific Gas & Electric (PG&E) provides electricity and natural gas to San Joaquin County. It generates or

buys electricity from hydroelectric, nuclear, renewable, natural gas, and coal facilities. PG&E provides natural gas and electricity to most of the northern two thirds of California, from Bakersfield and Barstow to near the Oregon, Nevada and Arizona state lines. It provides 5.2 million people with electricity and natural gas across 70,000 square miles. PG&E announced in 2019 that 100 percent of the company's delivered electricity comes from Greenhouse Gas (GHG) emission-free sources, including renewables, nuclear, and hydropower (PG&E 2019).

Potential energy-related impacts associated with this Project include the depletion of nonrenewable resources (e.g., oil, natural gas, coal) and emissions of pollutants during the construction. Since the Proposed Project is an existing and active well site, there will be no increase in operational energy uses, and thus will not be discussed in this analysis. Discussion of the impact will focus on the equipment-fuel necessary for Project construction, the single source of energy relevant to the Proposed Project:.

4.6.1.1 Energy Consumption

Electricity use is measured in Kilowatt-Hours (kWh). Natural gas is measured in therms. Vehicle fuel use is typically measured in gallons (e.g., of gasoline or diesel fuel), although energy use for electric vehicles is measured in kWh. Total automotive fuel consumption in San Joaquin County from 2018 to 2022 is shown in Table 4.6-1. As shown, automotive fuel consumption decreased since 2018.

Table 4.6-1. Automotive Fuel Consumption in in San Joaquin County 2018 - 2022

Year	Total Fuel Consumption (gallons)
2022	359,858,447
2021	358,203,636
2020	321,051,013
2019	368,235,402
2018	363,906,175

Source: CARB 2022b

4.6.2 Energy (VI) Environmental Checklist and Discussion

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?	☐	☐	☒	☐

Less Than Significant Impact.

Operations of the Proposed Project would not result in the consumption of electricity or natural gas and thus, would not contribute to the County wide usage. The one quantifiable source of energy associated with the Project includes the equipment fuel necessary for construction. For the purpose of this analysis, Project increases in construction fuel consumption are compared with the countywide fuel consumption in 2022, the most recent full year of data. The amount of total construction-related fuel used was estimated using ratios provided in the Climate Registry's General Reporting Protocol for the Voluntary Reporting Program, Version 2.1.

Addressing energy impacts requires an agency to make a determination as to what constitutes a significant impact. There are no established thresholds of significance, statewide or locally, for what constitutes a wasteful, inefficient, and unnecessary consumption of energy for a proposed land use. For the purposes of this analysis, the amount of fuel necessary for Project construction is calculated and compared to that consumed in in San Joaquin County (Table 4.6-2).

Table 4.6-2. Proposed Project Energy and Fuel Consumption

Energy Type	Annual Energy Consumed (gallons)	Percentage Increase Countywide
Vehicular/Equipment Fuel Consumption		
Construction Calendar Year One	5,517	0.001

Source: ECORP Consulting, Appendix D.
Notes: The Project increase construction-related fuel consumption is compared with the countywide construction-related fuel consumption in 2022, the most recent full year of data.

As shown in Table 4.6-2, the Project's gasoline fuel consumption during the first and only calendar year of construction is estimated to be 5,517 gallons of fuel resulting in an annual increase of gasoline fuel use in the County by 0.001 percent. As such, Project construction would have a nominal effect on local and regional energy supplies, especially over the long term. Additionally, construction equipment fleet turnover and increasingly stringent state and federal regulations on engine efficiency combined with state regulations limiting engine idling times and require recycling of construction debris, would further reduce the amount of transportation fuel demand during Project construction. For these reasons, it is expected that construction fuel consumption associated with the Project would not be any more inefficient, wasteful, or unnecessary than other similar development projects of this nature.

Operations of the Project would not generate any fuel consumption as it would not be contributing to any mobile sources. As such, fuel consumption associated with vehicle trips generated by the Project during operation would not be considered inefficient, wasteful, or unnecessary in comparison to other similar developments in the region.

For these reasons, this impact would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

No Impact.

The purpose of the Proposed Project is to construct a water treatment system to treat water produced by Well 29. Once in operation, the Project would not increase water pumping or treatment and would supply clean water to the surrounding community. There is no impact.

4.6.3 Mitigation Measures

No significant impacts were identified and no mitigation measures are required.

4.7 Geology and Soils

4.7.1 Geomorphic Setting

According to the Geotechnical Report by Blackburn Consulting (Blackburn Consulting 2023) included in Appendix E. The Project Site is located in the Great Valley Geomorphic Province. The Great Valley Province includes the Sacramento and San Joaquin Valleys and is bound by the Sierra Nevada on the east and the Coast Ranges on the west. The relatively flat surface of the Sacramento Valley is underlain by alluvial, lacustrine, and marine sedimentary deposits that have accumulated as the structural trough (Great Valley) formed and the adjacent mountain ranges were elevated. The thickness of the sediments varies from a thin veneer along the valley margins to thousands of feet at the axis of the trough. The main axis of the trough is oriented north-south along the valley's main drainage (over 20 miles east of the site. The site is underlain by Quaternary dune sand.

4.7.1.1 Regional Seismicity and Fault Zones

According to the Geotechnical Report by Blackburn (2023). The California DOC Division of Mines and Geology, defines an *active fault* as one that has been subjected to surface displacement within the last 11,000 years. A fault is considered *inactive* if it has not shown geologic evidence of surface displacement in the last 11,000 years.

The Fault Activity Map of California and the Geologic Map of the Sacramento Quadrangle do not identity Historic or Holocene age faults (displacement within the last 11,700 years) within or adjacent to the site. Faults with Historic or Holocene (last 11,700 years) rupture are often considered *active*. The closest mapped fault to the site is the Quaternary Vernalis fault located approximately 6.8 miles southwest of the site.

The Project Site does not lie within or adjacent to an Alquist–Priolo Earthquake Fault Zone.

4.7.1.2 Soils

According to the NRCS Web Soil Survey website (NRCS 2023), only one type of soil is present in the Project Area: Delhi-Urban land complex, 0 to 2 percent slopes (143). This soil is a somewhat excessively drained, wind-modified alluvium derived from granitic rock sources.

4.7.1.3 Paleontological Resources

The underlying geomorphology of this area consists of sediments deposited during flood stages of major streams in areas between natural stream levees and alluvial fans and are probably of late Pleistocene age (California Geological Survey [CGS] 2023). This means that the parcel exhibits alluvial sediments deposited by ancient and recent water flow, which can mask archaeological sites. Holocene (approximately 12,000 years ago to present) alluvial deposits are geological landforms which are likely too young for paleontological deposits.

4.7.2 Geology and Soils (VII) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☐	☒	☐
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐

Less Than Significant Impact.

i) The Project Area is not located within an Earthquake Fault Zone, as delineated on Alquist-Priolo Earthquake Fault Zoning Maps. The closest active fault to the Project Area is the Vernalis Fault, approximately 7 miles to the southeast. Additionally, none of the proposed activities would increase the risk of surface rupture or exposure of people to loss, injury, or death involving rupture of a known fault. The impacts under this criterion would be less than significant.

ii) Strong seismic ground shaking could occur in the Project Area because the active Vernalis Fault is approximately 7 miles southeast from the Project Area. While the Project would be located in a seismically active area, none of the Project components would be used for human occupancy, nor would any Project components exacerbate the existing risk of seismic shaking or associated damage. The Geotechnical Investigation Report prepared for the Project by Blackburn Consulting provides seismic design criteria in accordance with California Building Code (CBC) and American Society of Civil Engineers 7-10 seismic design requirements (Blackburn Consulting 2023).

The Geotechnical Investigation Report by Blackburn concluded that the Project Site is suitable from a geotechnical perspective to support the proposed structures construction. Therefore, based on the proposed uses of the improvements, no exacerbation of seismic ground-shaking risks, and incorporation of building code requirements into Project design, any impact related to seismic ground shaking would be considered less than significant.

iii) The Project would not include the construction of any habitable structures and would not exacerbate any liquefaction hazards currently present. The geotechnical report by Blackburn Consulting concluded that liquefaction hazards at this site are low and the Project would not alter the potential for liquefaction to occur which is typically triggered by seismic activity. Any potential damage that could occur from liquefaction would be minimized through the implementation of building code requirements. Project components would be required to adhere to the most current version of the CBC, which includes specifications and seismic design criteria (e.g., site preparation measures and foundation design) that are created to minimize damage from anticipated ground shaking and secondary effects of liquefaction. Therefore, based on the Project design, no exacerbation of liquefaction hazards and incorporation of seismic design criteria in accordance with building code requirements would limit the potential damage to less than significant levels.

iv) Landslides generally are any type of ground movement that occurs primarily due to gravity acting on relatively weak soils and bedrock on an over steepened slope. Slope instability is often initiated or accelerated from soil saturation and groundwater pressure, though may also be aggravated by grading activity, such as removal of toe support by excavation or addition of new loads, such as fill placement. Areas that are more prone to landslides include old landslides, the bases or tops of steep or filled slopes, and drainage hollows. Accordingly, due to the relatively flat topography of the project site, impacts related to landslides are not expected to affect any Project components, nor would the Project directly or indirectly cause substantial adverse effects related to landslides—seismically-induced or otherwise. Therefore, the potential impact from landslides is less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐

Less Than Significant Impact.

Construction activities associated with the Project would require land disturbing activities such as grading and excavation that could increase the susceptibility of soils to erosion by wind and/or water, and subsequently result in soil loss or erosion. The total site size is 1.79 acres; however, implementation of the Proposed Project would require less than one acre of disturbance. Therefore, the state Construction General Permit and its required Stormwater Pollution Prevention Plan (SWPPP) requirement would not apply. Although a SWPPP is not required, the contractor would establish erosion protection measures to minimize erosion. Where applicable, these measures would generally consist of Best Management Practices (BMPs) such as straw waddles, silt fences and stormwater drain inlet protection. Construction materials stored on site would be either on pallets or inside containers and trash cans and/or debris dumpsters would be covered and portable toilets would include secondary containment. Once constructed, surface soils at the site would be covered by the proposed improvements and revegetated to match existing conditions such that there would not be any potential for long-term erosional effects. Therefore, the potential impact on soil erosion or loss of topsoil is less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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 onsite or offsite landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐

Less Than Significant Impact.

As discussed above in criterion a) iv), the topography of the proposed improvements is relatively flat and the project would not cause or be subject to any landslide hazards. Lateral spreading, a condition related to liquefaction, and liquefaction, is also addressed above in criterion a) iii). The Project would not exacerbate any potential for lateral spreading or liquefaction and adherence to CBC requirements would minimize any adverse effects of these hazards to the proposed improvements. The proposed improvements could potentially cause subsidence through the placement of new loadings if not designed appropriately. However, all proposed improvements would be designed and constructed in accordance with current building code requirements, which would minimize the potential for causing subsidence. Collapse is generally the result of the extraction of groundwater or oil or construction on materials such as windblown deposits that are susceptible to collapse; the Project does not include any such extraction nor would any of the components be located on materials susceptible to collapse. Therefore, based on the

characteristics of the Project, Project Site, and adherence to CBC requirements, the potential impact would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐

Less Than Significant Impact.

Expansive soils are soils that possess a *shrink-swell* characteristic, also referred to as linear extensibility. Shrink-swell is the cyclic change in volume (expansion and contraction) that occurs in fine-grained clay sediments from the process of wetting and drying. Expansive soils are typically very fine-grained and have a high to very high percentage of clay. Linear extensibility is used to determine the shrink-swell potential of soils. If the linear extensibility is more than three percent, shrinking and swelling may cause damage to buildings, roads, and other structures (Natural Resources Conservation Service [NRCS] 2023). According to the NRCS Web Soil Survey, the soils present at the Project site have a low linear extensibility rating (NRCS 2018). Therefore, impacts related to soil expansion would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

No Impact.

The Project would not include any elements that would require a septic or other alternative wastewater system. Therefore, there would be no impact related to soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems. Therefore, there would be no impact.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐

Less Than Significant Impact.

Fill and Holocene-age alluvial deposits are mapped at the surface within the Project site. The surficial to shallow Holocene sediments are likely to be less than 12,000 years old and therefore would not be anticipated to contain significant paleontological resources. The fill and Holocene sediments would not be considered a unique paleontological resource. Additionally, the site is currently being used for the well infrastructure and a neighborhood park and is highly disturbed. Therefore, the impact relative to paleontological or unique geological resources would be less than significant.

4.7.3 Mitigation Measures

No significant impacts were identified and no mitigation measures are required.

4.8 Greenhouse Gas Emissions

4.8.1 Environmental Setting

GHG emissions are released as byproducts of fossil fuel combustion, waste disposal, energy use, land use changes, and other human activities. This release of gases, such as CO_2, methane (CH_4), nitrous oxide (N_2O), and chlorofluorocarbons, creates a blanket around the earth that allows light to pass through but traps heat at the surface, preventing its escape into space. While this is a naturally occurring process known as the greenhouse effect, human activities have accelerated the generation of GHGs beyond natural levels. The overabundance of GHGs in the atmosphere has led to an unexpected warming of the earth and has the potential to severely impact the earth's climate system.

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. CH_4 traps more than 25 times more heat per molecule than CO_2, and N_2O absorbs 298 times more heat per molecule than CO_2. Often, estimates of GHG emissions are presented in carbon dioxide equivalents (CO_2e). Expressing GHG emissions in carbon dioxide equivalents takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted.

The CEQA Guidelines Appendix G thresholds for GHG's do not prescribe specific methodologies for performing an assessment, do not establish specific thresholds of significance, and do not mandate specific mitigation measures. Rather, the CEQA Guidelines emphasize the lead agency's discretion to determine the appropriate methodologies and thresholds of significance consistent with the manner in which other impact areas are handled in CEQA. With respect to GHG emissions, the CEQA Guidelines § 15064.4(a) states that lead agencies "shall make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions resulting from a project. The CEQA Guidelines note that an agency has the discretion to either quantify a project's GHG emissions or rely on a "qualitative analysis or other performance-based standards." (14 California Code of Regulations [CCR] 15064.4(b)). A lead agency may use a "model or methodology" to estimate GHG emissions and has the discretion to select the model or methodology it considers "most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change." (14

CCR 15064.4(c)). Section 15064.4(b) provides that the lead agency should consider the following when determining the significance of impacts from GHG emissions on the environment:

1. The extent a project may increase or reduce GHG emissions as compared to the existing environmental setting.
2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
3. The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4(b)).

In addition, Section 15064.7(c) of the CEQA Guidelines specifies that "[w]hen adopting or using thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence" (14 CCR 15064.7(c)). The CEQA Guidelines also clarify that the effects of GHG emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impact analysis (see CEQA Guidelines § 15130(f)). As a note, the CEQA Guidelines were amended in response to SB 97. In particular, the CEQA Guidelines were amended to specify that compliance with a GHG emissions reduction plan renders a cumulative impact insignificant.

Per CEQA Guidelines § 15064(h)(3), a project's incremental contribution to a cumulative impact can be found not cumulatively considerable if the project would comply with an approved plan or mitigation program that provides specific requirements that would avoid or substantially lessen the cumulative problem within the geographic area of the project. To qualify, such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency. Examples of such programs include a "water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plans [and] plans or regulations for the reduction of greenhouse gas emissions." Put another way, CEQA Guidelines § 15064(h)(3) allows a lead agency to make a finding of less than significant for GHG emissions if a project complies with adopted programs, plans, policies and/or other regulatory strategies to reduce GHG emissions.

To provide guidance to local lead agencies on determining significance for GHG emissions in CEQA documents, the SJVAPCD provides a tiered approach in assessing significance of project specific GHG emission increases as shown below.

- Projects complying with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located would be determined to have a less-than-significant individual and cumulative impact for GHG emissions. Such plans or programs must be specified in law or approved by the lead agency with jurisdiction over the affected resource and supported by a CEQA-compliant

environmental review document adopted by the lead agency. Projects complying with an approved GHG emission reduction plan or GHG mitigation program would not be required to implement Best Performance Standards (BPS).

- Projects implementing BPS would not require quantification of project-specific GHG emissions. Consistent with CEQA Guidelines, such projects would be determined to have a less-than-significant individual and cumulative impact for GHG emissions.
- Projects not implementing BPS would require quantification of project-specific GHG emissions and demonstration that project-specific GHG emissions would be reduced or mitigated by at least 29 percent, and compared to Business-as-Usual (BAU), including GHG emission reductions achieved since the 2002-2004 baseline period, consistent with GHG emission reduction targets established in the 2017 Scoping Plan. Projects achieving at least a 29 percent GHG emission reduction compared to BAU would be determined to have a less-than-significant individual and cumulative impact for GHGs.

The BPS and the BAU portion of the SJVAPCD tiered approach are problematic based on the 2015 California Supreme Court *Center for Biological Diversity v. Department of Fish and Wildlife* (2015) 62 Cal. 4th 2014, 213, 221, 227 (Newhall Ranch) decision, which stated that a GHG-related impact determination based on the BAU approach is "not supported by a reasoned explanation based on substantial evidence." Additionally, the SJVAPCD thresholds were adopted to achieve statewide GHG-reduction goals for the year 2020, and the Proposed Project would not be built until after the year 2020. Therefore, for the purposes of this analysis, Project GHG emissions are quantified and compared to the thresholds issued by the California Air Pollution Control Officers Association (CAPCOA), which is an association of the air pollution control officers from all 35 local air quality agencies throughout California, including the SJVAPCD. CAPCOA recommends a significance threshold of 900 metric tons annually. This threshold is based on a capture rate of 90 percent of land use development projects, which in turn translates into a 90 percent capture rate of all GHG emissions. The 900 metric ton threshold is considered by CAPCOA to be low enough to capture a substantial fraction of future projects that will be constructed to accommodate future statewide population and economic growth, while setting the emission threshold high enough to exclude small projects that will in aggregate contribute a relatively small fraction of the cumulative statewide GHG emissions.

In the Newhall Ranch decision, following its review of various potential GHG thresholds proposed in an academic study [Crockett, *Addressing the Significance of Greenhouse Gas Emissions: California's Search for Regulatory Certainty in an Uncertain World* (July 2011), 4 Golden Gate U. Envtl. L. J. 203], the California Supreme Court identified the use of numeric bright-line thresholds as a potential pathway for compliance with CEQA GHG requirements. The study found numeric bright line thresholds designed to determine when small projects were so small as to not cause a cumulatively considerable impact on global climate change was consistent with CEQA. Specifically, Public Resources Code section 21003(f) provides it is a policy of the state that "[a]ll persons and public agencies involved in the environmental review process be responsible for carrying out the process in the most efficient, expeditious manner in order to conserve the available financial, governmental, physical and social resources with the objective that those resources may be better applied toward the mitigation of actual significant effects on the environment." The

Supreme Court-reviewed study noted, "[s]ubjecting the smallest projects to the full panoply of CEQA requirements, even though the public benefit would be minimal, would not be consistent with implementing the statute in the most efficient, expeditious manner. Nor would it be consistent with applying lead agencies' scarce resources toward mitigating actual significant climate change impacts." (Crockett, *Addressing the Significance of Greenhouse Gas Emissions: California's Search for Regulatory Certainty in an Uncertain World* (July 2011), 4 Golden Gate U. Envtl. L. J. 203, 221, 227.)

4.8.2 Greenhouse Gas Emissions (VIII) Environmental Checklist and Discussion

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?	☐	☐	☒	☐

Less Than Significant Impact.

A potent source of GHG emissions associated with the Proposed Project would be combustion of fossil fuels during construction activities. Construction-related activities that would generate GHG emissions include worker commute trips, haul trucks carrying supplies and materials to and from the Project Site, and off-road construction equipment (e.g., dozers, loaders, excavators). Table 4.8-1 illustrates the specific construction generated GHG emissions that would result from construction of the Project. Once construction is complete, the generation of these GHG emissions would cease.

Table 4.8-1. Construction-Related Greenhouse Gas Emissions

Emission Source	CO_2e (Metric Tons/Year)
Construction Calendar Year One	56
Potentially Significant Impact Threshold	*900*
Exceed *Significant Impact* Threshold?	**No**

Source: CalEEMod Version 2022.1.1.12. Refer to Appendix A1 for Model Data Outputs.

As shown in Table 4.8-1, Project construction would result in the generation of approximately 56 metric tons of CO_2e over the course of construction, which is below the significance threshold of 900 metric tons of CO_2e. Once construction is complete, the generation of these GHG emissions would cease.

Operational GHG emissions impacts are long-term GHG emissions impacts that are associated with any changes in the permanent use of the Project Site by onsite stationary and offsite mobile sources that substantially increase emissions. The Project proposes the construction of a granular activated carbon water treatment system at an existing well site. Once upgrades are complete, the Project would not be a greater source of operational emissions beyond current conditions. Therefore, Proposed Project operations would not contribute to on- or offsite emissions.

Impacts would be less than significant.

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

No Impact.

The Project would not conflict with any adopted plans, policies, or regulations adopted for the purpose of reducing GHG emissions. As discussed previously, the Proposed Project-generated GHG emissions would not surpass the CAPCOA GHG significance threshold, which was developed in consideration of statewide GHG reduction goals. Additionally, the Project would not include new permanent sources of GHG emissions and would not generate new or unplanned permanent GHG emissions.

The Project would not conflict with any applicable plan, policy or regulation related to the reduction in GHG emissions. There is no impact.

4.8.3 Mitigation Measures

No significant impacts were identified and no mitigation measures are required.

4.9 Hazards and Hazardous Materials

4.9.1 Environmental Setting

A material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, state, or local agency, or if it has characteristics defined as hazardous by such an agency. A hazardous material is defined by the California Health and Safety Code, Section 25501 as follows:

> "Hazardous material" means any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. "Hazardous materials" include, but are not limited to, hazardous substances, hazardous waste, and any material that a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

A hazardous material is defined in 22 CCR Section 662601.10 as follows:

> A substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed.

Transporters of hazardous waste in California are subject to several federal and state regulations. They must register with the California Department of Health Services (DHS) and ensure that vehicle and waste container operators have been trained in the proper handling of hazardous waste. Vehicles used for the transportation of hazardous waste must pass an annual inspection by the California Highway Patrol (CHP). Transporters must allow the CHP or DHS to inspect its vehicles and must make certain required inspection records available to both agencies. The transport of hazardous materials that are not wastes is regulated by the U.S. Department of Transportation (USDOT) through national safety standards.

Other risks resulting from hazardous materials include the use of these materials in local industry, businesses, and agricultural production. The owner or operator of any business or entity that handles a hazardous material above threshold quantities is required by state and federal laws to submit a business plan to the local Certified Unified Program Agency (CUPA). The San Joaquin County Division of Environmental Health is designated by the State Secretary for Environmental Protection as the CUPA for San Joaquin County in order to focus the management of specific environmental programs at the local government level. The CUPA program is designed to consolidate, coordinate, and uniformly and consistently administer permits and conduct inspection and enforcement activities throughout San Joaquin County. This approach strives to reduce overlapping and sometimes conflicting requirements of different governmental agencies independently managing these programs. The County would refer large cases of hazardous materials contamination or violations to the Regional Water Quality Control Board (Central Valley Region) and the California Department of Toxic Substances Control (DTSC). It is not uncommon for other agencies, such as federal and state Occupational Safety and Health Administrations, to become involved when issues of hazardous materials arise.

Under Government Code Section 65962.5, both the DTSC and the SWRCB are required to maintain lists of sites known to have hazardous substances present in the environment. Both agencies maintain up-to-date lists on their websites. The Project Site is not listed by the DTSC as a hazardous substances site (EnviroStor) on the list of hazardous waste sites compiled pursuant to Government Code Section 65962.5 (Cortese List).

4.9.2 Hazards and Hazardous Materials (IX) Environmental Checklist and Discussion

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?	☐	☐	☒	☐

Less Than Significant Impact.

Project construction activities would likely require the use of limited quantities of hazardous materials such as fuels, oils, lubricants, paint, and solvents. The improper use, storage, handling, transport or disposal of hazardous materials during construction or an accidental release could expose construction workers, the public, and the environment, including soil and/or ground or surface water, to adverse effects. Generally, the Proposed Project would not be expected to pose a risk of accidental release of

hazardous materials or wastes, as these materials would not be used or stored on-site in significant quantities.

California Occupational Safety and Health Administration is responsible for developing and enforcing workplace safety standards, including the handling and use of hazardous materials during operation. Transportation of hazardous materials is regulated by the USDOT and Caltrans. All contractors handling hazardous materials during construction and the City of Manteca during operations are required to prepare and implement a Hazardous Materials Management Plan (HMMP). The HMMP would require identification of the hazardous materials to be used, training for workers in the proper handling of the materials, and procedures for responding to spills, if any. Regulations, including Resource Conservation Recovery Act, Interim Final Rule found in 29 Code of Federal Regulations Part 1926.62 (lead and lead-based paint) and San Joaquin Valley Air Pollution Control District requirements under their Asbestos Program would limit exposure to hazardous building materials. Together, federal, state, and local regulations regulate the storage, handling, transportation, and disposal of hazardous materials, including hazardous building materials, which are all designed to minimize the risk of accidental release and exposure. Therefore, the transport, use, storage, handling and disposal of hazardous materials for the Project would be adequately controlled through compliance with existing regulatory requirements and the potential impact during construction and operation would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	☐	☒	☐

Less Than Significant Impact.

See discussion above in checklist question (a).

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒

No Impact.

Construction of the Project would not occur within 0.25 mile of a school. The closest school is Sequoia Elementary approximately 0.4 mile southeast of the Project Site. Therefore, there is no impact.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	☐	☐	☒

No Impact.

The Project Site and staging area is not included on any of the environmental databases maintained by the SWRCB (2023) or the department of DTSC (2023). Therefore, the Project would not cause a significant hazard to the public or the environment related to being located on a known hazardous materials site and there would be no impact.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard for people residing or working in the Project Area?	☐	☐	☐	☒

No Impact.

The Project and staging area would not be located within an airport land use plan or within 2 miles of an airport or within the vicinity of an active private air strip. There would be no impact regarding air traffic hazards or excessive noise.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐

Less Than Significant Impact.

The Proposed project would require temporary lane closure during the sewer manhole installation; however, this would be short term and access to the area would not be completely blocked and would not require detours. Therefore, there would be no emergency response and/or evacuation plans would not be impacted.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

Less Than Significant Impact.

According to the California Department of Forestry and Fire Protection's (CAL FIRE) Fire Hazard Severity Zone map, the Project Site and staging areas would not be within an area designated as very high or high fire hazard zones. The Project would be located in an urban area and would not include any habitable structures. Therefore, there is a less than significant impact associated with potential exposure to wildland fires.

4.9.3 Mitigation Measures

No significant impacts were identified and no mitigation measures are required.

4.10 Hydrology and Water Quality

4.10.1 Environmental Setting

The project site is located in an existing small neighborhood park. The site is flat and does not include visible drainage ditches or basins. Water is reabsorbed through the grass during rain events. During heavy events, the water likely either ponds in indentions in the field or drains from the grass, over the sidewalks, and into the existing gutters.

4.10.2 Hydrology and Water Quality (X) Environmental Checklist and Discussion

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 groundwater quality?	☐	☐	☒	☐

Less Than Significant Impact.

As noted, the total ground disturbance for the Proposed Project would be less than one acre and the state Construction General Permit and its required SWPPP requirement would not apply. Although a SWPPP is not required, the contractor would establish erosion protection measures to minimize erosion. These measures would generally consist of BMPs such as straw waddles, silt fences and stormwater drain inlet protection (where applicable). Construction materials stored onsite would be either on pallets or inside containers and trash cans and/or debris dumpsters would be covered; portable toilets would include secondary containment. The Project design would be required to adhere to applicable drainage control

requirements to ensure that the new impervious surfaces created by the Project would not violate water quality control standards. The project would adhere to the Multi-Agency Post-Construction Stormwater Standards Manual (June 2015) developed to meet National Pollutant Discharge Elimination System Phase II Municipal Separate Sewer System Water Program Permit requirements. The manual provides post-construction standards to address stormwater quality for new development and redevelopment projects. These drainage control requirements apply to all projects that create or replace more than 5,000 sf of impervious surfaces.

The Project would treat the well water to remove TCP and improve water quality in the distribution system. As part of periodic maintenance, the GAC treatment tanks would be backwashed to remove fines. The backwash wastewater would be collected in backwash tanks and discharged directly into the existing sanitary sewer system for further treatment at the Manteca Water Quality Control Facility in accordance with any applicable facility requirements. The use of the two GAC tanks in series (i.e., the effluent of the first tank would become the intake for the second tank) with routine monitoring would ensure that water quality goals are being met. Therefore, with the proposed monitoring, routine maintenance, and consistency with any applicable Manteca Water Quality Control Facility discharge requirements, there would be no violations of water quality control requirements or discharge requirements. Therefore, with implementation of proposed BMPs and post-construction stormwater standards, the Proposed Project would have a less than significant impact related to water quality control standards and waste discharge standards.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐

Less Than Significant Impact.

The Project would create a minor amount of additional impervious surface and the small footprint would not substantially interfere with groundwater recharge. Additionally, the Project does not include groundwater extraction. Well 29 already exists and the Project would just be adding an additional filtration/treatment process to the existing well system. The Project won't change the original well water usage. Therefore, the Project would not negatively impact groundwater supplies and the impact would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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 that would:				
i) result in substantial erosion or siltation onsite or offsite;	☐	☐	☒	☐
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite;	☐	☐	☒	☐
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
iv) impede or redirect flood flows?	☐	☐	☒	☐

Less Than Significant Impact.

i) As previously discussed above in (a), the project would implement BMPs to prevent erosion and siltation during construction, such that the impact would be less than significant.

ii) Additionally, the Project would have a relatively small footprint and would not produce significant runoff that would cause potential issues with on- or offsite flooding. As previously mentioned, the Project would be required to adhere to post construction drainage control requirements in accordance with the Multi-Agency Post Construction Stormwater Standards Manual that would also include measures to control runoff volumes. Considering the small footprint and required drainage control, the potential for flooding on or off site would be less than significant.

iii) As discussed above, the Project would implement BMPs to control runoff during construction, and drainage control features during operation such that the potential to exceed capacity of the existing drainage system or create additional sources of polluted runoff would be minimal. Therefore, this impact would be less than significant.

iv) The Project footprint is not located in a flood zone (Department of Water Resources [DWR] 2019; Federal Emergency Management Agency [FEMA] 2019) and therefore would not impede or redirect any flood flows. Therefore, the impact would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation?	☐	☐	☐	☒

No Impact.

According to the California DWR the Project Area is neither within a FEMA 100-year flood zone, nor within a U.S. Army Corps of Engineers 200-year flood zone. The Project Area is landlocked and not within proximity of any closed or semi-enclosed water body such that there is no risk of seiches adversely affecting the Project. Additionally, the Project Area is not located near the ocean where tsunamis occur. Therefore, there would be no impact related to risk of release of pollutants due to Project inundation caused by a flood, seiche, or tsunami.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

Less Than Significant Impact.

The purpose of the Project is to improve water quality, specifically by removing TCP from extracted well water prior to discharge to the distribution system. The improvement of water quality would be consistent with the goals and objectives of the local water quality control plan, 2005 Water Master Plan for the City of Manteca. As noted above, the Project would not increase groundwater extraction over existing conditions. Therefore, impacts related to conflict with or obstruction of a water quality control plan or sustainable groundwater management plan would be less than significant.

4.10.3 Mitigation Measures

No significant impacts were identified and no mitigation measures are required.

4.11 Land Use and Planning

4.11.1 Environmental Setting

The Proposed Project Site is located within the City of Manteca in the existing Yosemite Village neighborhood park. The park is currently zoned as (P) Park.

4.11.2 Land Use and Planning (XI) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒

No Impact.

The Proposed Project would add water treatment equipment and appurtenances to the existing City of Manteca water treatment system to remove TCP. Construction and operation would occur at an existing City of Manteca water well and associated facilities and would not result in the division of any established communities in the area because the project site is already being used for water treatment purposes. Therefore, the Project would result in no impact.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	☐	☐	☒

No Impact.

The General Plan and zoning designations of the Project Site are (P) Park. As stated above, the construction of water treatment equipment would occur at the existing onsite well and related facilities. Although the project would result in a minor increase in footprint, implementation of the Proposed Project would not change the land use or zoning designations of the Project Site. Construction of the treatment facility and connection pipelines within existing City property or road rights-of-way would comply with existing land use designations for the site. The new facilities would therefore represent no change in existing land uses.

The General Plan's Land Use Element, establishes the goals that define the characteristics of land uses throughout the City and policies to guide the overall development within Manteca. As part of this analysis, the Land Use Element's goals and policies were reviewed for any potential conflict that the Proposed Project could have with specific policies whose purpose is to avoid or mitigate environmental effects. There was no conflict since many of the goals and policies are related to growth and development and this Project does not induce growth. Goal LU-5 is to "provide adequate land for development of public and quasi-public uses to support existing and new residential, commercial, and industrial land uses" and Goal LU-8 states "To reinforce strong urban design, quality development and a compact city form", both of which could be applicable to the project, which consists of developing public infrastructure on City-owned land and designed to conform with the surrounding environment (City of Manteca 2003). The Project does not conflict with these goals or their supporting policies and therefore, the Proposed Project

would not cause a significant environmental impact due to a conflict with a land use plan, policy, or regulation and the result would be no impact.

4.11.3 Mitigation Measures

No significant impacts were identified and no mitigation measures are required.

4.12 Mineral Resources

4.12.1 Environmental Setting

Minerals are defined as any naturally occurring chemical elements or compounds formed by inorganic processes and organic substances. Minable minerals are defined as a deposit of ore or minerals having a value materially in excess of the cost of developing, mining, and processing the mineral and reclaiming the Project Area. The conservation, extraction, and processing of mineral resources is essential to meeting the needs of society.

The Surface Mining and Reclamation Act of 1975 (SMARA) states that cities and counties shall adopt ordinances "...that establish procedures for the review and approval of reclamation plans and financial assurances and the issuance of a permit to conduct surface mining operations..." (PRC Section 2774). The intent of this legislation is to ensure the prevention or mitigation of the adverse environmental impacts of mining, the reclamation of mined lands, and the production and conservation of mineral resources are consistent with recreation, watershed, wildlife, and public safety objectives (PRC Section 2712).

SMARA requires the State Geologist to classify land into Mineral Resource Zones (MRZ) according to the known or inferred mineral potential of that land. The process is based solely on geology, without regard to existing land use or land ownership. The primary goal of mineral land classification is to ensure that the mineral potential of land is recognized by local government decision makers and considered before land use decisions are made, which could preclude mining. Areas subject to California mineral land classification studies are divided into the following MRZ categories that reflect varying degrees of mineral potential:

- MRZ-1: Areas of no mineral resource significance
- MRZ-2: Areas of identified mineral resource significance
- MRZ-3: Areas of undetermined mineral resource significance
- MRZ-4: Areas of unknown mineral resource significance

The Mineral Land Classification Map published by the CGS shows the Project Area is within a MRZ-1: Area of no mineral resources.

4.12.2 Mineral Resources (XII) Environmental Checklist and Discussion

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?	☐	☐	☐	☒

No Impact.

The City of Manteca General Plan identifies areas near the San Joaquin River, as areas of significant mineral resources, however, there are no Project components planned near the San Joaquin River and would therefore not result in the loss of any of those resources. The General Plan does not identify any area of significant mineral resources within or adjacent to the Project Area. The Mineral Land Classification Map published by the CGS shows the Project Area is within an MRZ-1: area of no known mineral resources. Therefore, the Project would not result in the loss of known mineral resources. There would be no impact.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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.

As stated above, the Project is not in an area known to contain mineral resources, including locally important mineral recovery sites. There would be no impact.

4.12.3 Mitigation Measures

No significant impacts were identified and no mitigation measures are required.

4.13 Noise

4.13.1 Environmental Setting

4.13.1.1 Noise Fundamentals

Noise is generally defined as sound that is loud, disagreeable, or unexpected. The selection of a proper noise descriptor for a specific source is dependent on the spatial and temporal distribution, duration, and fluctuation of the noise. The noise descriptors most often encountered when dealing with traffic, community, and environmental noise include the average hourly noise level (in L_{eq}) and the average daily

noise levels/community noise equivalent level (in L_{dn}/CNEL). The L_{eq} is a measure of ambient noise, while the L_{dn} and CNEL are measures of community noise. Each is applicable to this analysis and defined as follows:

- **Equivalent Noise Level (L_{eq})** is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
- **Day-Night Average (L_{dn})** is a 24-hour average L_{eq} with a 10-dBA *weighting* added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.4 dBA L_{dn}.
- **Community Noise Equivalent Level (CNEL)** is a 24-hour average L_{eq} with a 5-dBA weighting during the hours of 7:00 pm to 10:00 pm and a 10-dBA weighting added to noise during the hours of 10:00 pm to 7:00 am to account for noise sensitivity in the evening and nighttime, respectively.

Noise can be generated by a number of sources, including mobile sources, such as automobiles, trucks and airplanes, and stationary sources, such as construction sites, machinery, and industrial operations.

Sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately 6 dB for each doubling of distance from a stationary or point source. Sound from a line source, such as a highway, propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of approximately 3 dB for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics (Federal Highway Administration [FHWA] 2011). Soft surfaces, such as soft dirt or grass, can absorb sound, so an excess ground-attenuation value of 1.5 dB per doubling of distance is normally assumed (FHWA 2011).

The manner in which older structures in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows (Caltrans 2002). The exterior-to-interior reduction of newer structures is generally 30 dBA or more (Harris Miller Miller & Hanson Inc. 2006).

Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60- to 70-dBA range, and high, above 70 dBA. Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet, suburban, residential streets with noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with noisier urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (65 to 80 dBA). Regarding increases in dBA, the following relationships should be noted in understanding this analysis:

- Except in carefully controlled laboratory experiments, a change of 1.0 dBA cannot be perceived by humans.
- Outside of the laboratory, a 3.0-dBA change is considered a just-perceivable difference.
- A change in level of at least 5.0 dBA is required before any noticeable change in community response would be expected. An increase of 5.0 dBA is typically considered substantial.

A 10.0-dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

Sensitive Noise Receptors

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Additional land uses such as parks, historic sites, cemeteries, and recreation areas are considered sensitive to increases in exterior noise levels. Schools, churches, hotels, libraries, and other places where low interior noise levels are essential are also considered noise-sensitive land uses. The nearest noise sensitive receptors to the Project Site are single-family homes fronting El Portal Avenue and Tenaya Court located south and west of the Project Site.

4.13.1.2 Vibration Sources and Characteristics

Ground vibration can be measured several ways to quantify the amplitude of vibration produced, including through Peak Particle Velocity (PPV) or root mean square velocity. These velocity measurements measure maximum particle at one point or the average of the squared amplitude of the signal, respectively. Vibration impacts on people can be described as the level of annoyance and can vary depending on an individual's sensitivity. Generally, low-level vibrations may cause window rattling but do not pose any threats to the integrity of buildings or structures.

4.13.1.3 Existing Ambient Noise Environment

There are several significant noise sources in the City of Manteca. Mobile sources of noise, especially cars and trucks traveling on area roadways, are the most common and significant noise in the Project Area. Other sources of noise are the various land uses (i.e., residential, commercial, institutional, and recreational) throughout the City that generate stationary-source noise. The Project Site is located at the Yosemite Village Park and is surrounded by residential land uses.

The American National Standards Institute (ANSI) Standard 12.9-2013/Part 3 "Quantities and Procedures for Description and Measurement of Environmental Sound – Part 3: Short-Term Measurements with an Observer Present" provides a table of approximate background sound levels in L_{dn}, daytime L_{eq}, and nighttime L_{eq}, based on land use and population density. The ANSI standard estimation divides land uses into six distinct categories. Descriptions of these land use categories, along with the typical daytime and nighttime levels, are provided in Table 4.13-1. At times, one could reasonably expect the occurrence of periods that are both louder and quieter than the levels listed in the table. ANSI notes, "95% prediction interval [confidence interval] is on the order of +/- 10 dB." The majority of the Project Area would be considered ambient noise Category 4.

Table 4.13-1. ANSI Standard 12.9-2013/Part 3 A-weighted Sound Levels Corresponding to Land Use and Population Density

Category	Land Use	Description	People per Square Mile	dBA		
				Typical L_{dn}	Daytime L_{eq}	Nighttime L_{eq}
1	Noisy Commercial & Industrial Areas and Very Noisy Residential Areas	Very heavy traffic conditions, such as in busy, downtown commercial areas; at intersections for mass transportation or other vehicles, including elevated trains, heavy motor trucks, and other heavy traffic; and at street corners where many motor buses and heavy trucks accelerate.	63,840	67	66	58
2	Moderate Commercial & Industrial Areas and Noisy Residential Areas	Heavy traffic areas with conditions similar to Category 1, but with somewhat less traffic; routes of relatively heavy or fast automobile traffic, but where heavy truck traffic is not extremely dense.	20,000	62	61	54
3	Quiet Commercial, Industrial Areas and Normal Urban & Noisy Suburban Residential Areas	Light traffic conditions where no mass-transportation vehicles and relatively few automobiles and trucks pass, and where these vehicles generally travel at moderate speeds; residential areas and commercial streets, and intersections, with little traffic, compose this category.	6,384	57	55	49
4	Quiet Urban & Normal Suburban Residential Areas	These areas are similar to Category 3, but for this group, the background is either distant traffic or is unidentifiable; typically, the population density is one-third the density of Category 3.	2,000	52	50	44
5	Quiet Residential Areas	These areas are isolated, far from significant sources of sound, and may be situated in shielded areas, such as a small-wooded valley.	638	47	45	39
6	Very Quiet Sparse Suburban or rural Residential Areas	These areas are similar to Category 4 but are usually in sparse suburban or rural areas; and, for this group, there are few if any nearby sources of sound.	200	42	40	34

Source: The American National Standards Institute (ANSI) 2013

4.13.2 Noise (XIII.) Environmental Checklist and Discussion

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?	☐	☐	☒	☐

Less Than Significant Impact.

As previously described, noise-sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, guest lodging, libraries, and some passive recreation areas would each be considered noise sensitive and may warrant unique measures for protection from intruding noise. The nearest noise sensitive receptors to the Project Site are single-family homes fronting El Portal Avenue and Tenaya Court located south and west of the Project Site.

4.13.2.1 Onsite Construction Noise Impacts

Construction noise associated with the Proposed Project would be temporary and would vary depending on the specific nature of the activities being performed. Noise generated would primarily be associated with the operation of off-road equipment for onsite construction activities as well as construction vehicle traffic on area roadways. Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., site preparation, excavation, paving). Noise generated by construction equipment, including earth movers, pile drivers, and portable generators, can reach high levels. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full power operation followed by 3 to 4 minutes at lower power settings. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). During construction, exterior noise levels could negatively affect sensitive land uses in the vicinity of the construction site.

The City does not promulgate a numeric threshold pertaining to the noise associated with construction. This is because construction noise is temporary, short term, intermittent in nature, and would cease on completion of the Project. The City of Manteca Municipal Code Chapter 17.85, Performance Standards, states that construction is prohibited between the hours of 7:00 p.m. and 7:00 a.m.

To estimate the worst-case onsite construction noise levels that may occur at the nearest noise-sensitive receptors and in order to evaluate the potential health-related effects (physical damage to the ear) from construction noise, the construction equipment noise levels were calculated using the Federal Highway Administration's Roadway Noise Construction Model and compared against the construction-related noise level threshold established in the Criteria for a Recommended Standard: Occupational Noise

Exposure prepared in 1998 by the National Institute for Occupational Safety and Health (NIOSH). A division of the U.S. Department of Health and Human Services, NIOSH identifies a noise level threshold based on the duration of exposure to the source. The NIOSH construction-related noise level threshold starts at 85 dBA for more than 8 hours per day; for every 3-dBA increase, the exposure time is cut in half. This reduction results in noise level thresholds of 88 dBA for more than 4 hours per day, 92 dBA for more than 1 hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day. For the purposes of this analysis, the lowest, more conservative threshold of 85 dBA L_{eq} is used as an acceptable threshold for construction noise at the nearby sensitive receptors.

It is acknowledged that the majority of construction equipment is not situated at any one location during construction activities, but rather spread throughout the Project Site and at various distances from sensitive receptors. Therefore, this analysis employs Federal Transit Administration (FTA) guidance for calculating construction noise, which recommends measuring construction noise produced by all construction equipment simultaneously from the center of the Project Site (FTA 2018), which in this case is approximately 170 feet from the nearest residence. It is noted that the Project has two layout options. As such, the nearest sensitive receptor among the two options was utilized in this analysis. Additionally, since the equipment required for both options is the same, only a single construction layout option is presented. The anticipated short-term construction noise levels generated for the necessary equipment for each phase of construction are presented in Table 4.13-2.

Table 4.13-2. Construction Average (dBA) Noise Levels at Nearest Residential Receptors

Equipment	Estimated Exterior Construction Noise Level at Existing Residences (dBA)	Construction Noise Standards (dBA L_{eq})	Exceeds Standards?
Demolition	70.8	*85*	**No**
Grading	69.8	*85*	**No**
Underground Piping & Electrical	71.9	*85*	**No**
Paving	68.5	*85*	**No**
Miscellaneous Activities	62.7	*85*	**No**

Source: Construction noise levels were calculated by ECORP Consulting using the FHWA Roadway Noise Construction Model (FHWA 2006). Refer to Appendix F for Model Data Outputs.

Notes: Construction equipment used during construction provided by Project applicant. Consistent with FTA recommendations for calculating construction noise, construction noise was measured from the center of the Project Site (FTA 2018), which is 170 feet from the nearest sensitive receptor.

L_{eq} = The equivalent energy noise level, is the average acoustic energy content of noise for a stated period of time. Thus, the Leq of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.

As shown in Table 4.13-2, Project onsite construction activities would not exceed the NIOSH threshold of 85 dBA L_{eq} at the nearest noise-sensitive receptors. Construction noise would have a less than significant impact.

4.13.2.2 Operational Noise Impacts

The Project is proposing the construction of a granular activated carbon water treatment system at an existing well site. Once upgrades are complete, the Project Site would not generate noise beyond current conditions. The Project would have no impact.

Would the Project result in	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐

Less Than Significant Impact.

4.13.2.3 Construction Vibration Impacts

Excessive groundborne vibration impacts result from continuously occurring vibration levels. Increases in groundborne vibration levels attributable to the Proposed Project would be primarily associated with short-term construction-related activities. Construction on the Project Site would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance.

Construction-related ground vibration is normally associated with impact equipment such as pile drivers, jackhammers, and the operation of some heavy-duty construction equipment, such as dozers and trucks. It is not anticipated that pile drivers would be necessary during Project construction. Vibration decreases rapidly with distance, and it is acknowledged that construction activities would occur throughout the Project Site and would not be concentrated at the point closest to sensitive receptors. Groundborne vibration levels associated with construction equipment are summarized in Table 4.13-3.

Table 4.13-3. Typical Construction Equipment Vibration Levels

Equipment Type	Peak Particle Velocity at 25 Feet (inches per second)
Large Bulldozer	0.089
Pile Driver	0.170
Caisson Drilling	0.089
Loaded Trucks	0.076
Rock Breaker	0.089
Jackhammer	0.035
Small Bulldozer/Tractor	0.003
Vibratory Roller	0.210

Source: Caltrans 2020; FTA 2018

Per Section 17.58.070 of the City of Manteca Municipal Code, vibration from temporary demolition/ construction is exempt from City standards. However, a discussion of construction vibration is included for full disclosure purposes. For comparison purposes, the Caltrans (2020) recommended standard of 0.3 inches per second PPV with respect to the prevention of structural damage for older residential buildings is used as a threshold. This is also the level at which vibrations may begin to annoy people in buildings.

Consistent with FTA recommendations for calculating construction vibration, construction vibration was calculated to account for all Project construction equipment operating simultaneously from the center of the Project Site (FTA 2018). The nearest structure of concern to the construction site, with regard to groundborne vibrations, are single-family homes located approximately 170 feet from the Project Site center.

Based on the representative vibration levels presented for various construction equipment types in Table 4.13-3 and the construction vibration assessment methodology published by the FTA (2018), it is possible to estimate the potential project construction vibration levels. The FTA provides the following equation:

$$[PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}]$$

Table 4.13-4 presents the expected Project related vibration levels at a distance of 170 feet.

Table 4.13-4. Construction Vibration Levels at 170 Feet

Receiver PPV Levels (in/sec)[1]							Peak Vibration	Threshold	Exceed Threshold
Large Dozer	Pile Driver	Drilling & Rock Breaker	Loaded Trucks	Roller	Jack-hammer	Small Dozer			
0.0049	0.0095	0.0049	0.0042	0.0117	0.0019	0.0001	0.0117	*0.3*	**No**

As shown in Table 4.13-4, groundborne vibrations attenuate rapidly from the source due to geometric spreading and material damping. Geometric spreading occurs because the energy is radiated from the source and spreads over an increasingly large distance while material damping is a property of the friction loss which occurs during the passage of a vibration wave. Vibration as a result of construction activities would not exceed 0.3 PPV. Thus, Project construction would not exceed the recommended threshold. This impact is less than significant.

4.13.2.4 Operational Vibration Impacts

Project operations would not include the use of any large-scale stationary equipment that would result in excessive vibration levels. Therefore, the project would not result groundborne vibration impacts during operations. No impact would occur.

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the Project Area to excessive noise levels?	☐	☐	☐	☒

No Impact.

The Project Site is located approximately 7.0 miles south of the Stockton Metropolitan Airport. Aircraft noise does not significantly impact the Project Site area and would not expose people working on the Project Site to excess airport noise levels. No impact would occur.

4.13.3 Mitigation Measures

No significant impacts were identified and no mitigation measures are required.

4.14 Population and Housing

The Project is located within an existing neighborhood and is not considered to be growth-inducing and would not impact the existing population or housing within the City.

4.14.1 Population and Housing (XIV) Environmental Checklist and Discussion

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)?	☐	☐	☒	☐

Less Than Significant Impact.

The Project would not induce unplanned population growth directly or indirectly because it neither proposes new homes or businesses nor expands water supplies or infrastructure to deliver water supplies. Therefore, the Project would have no potential to directly induce substantial unplanned population growth. The following discussion addresses indirect inducement of unplanned population growth.

4.14.1.1 Project Construction

The Project would employ up to 12 workers at the Site over a 10-month period. These workers would likely either be already living in the existing community or from a nearby location due to the short

duration of the construction. The short duration of the Project would not be likely to lead any construction workers to move to a new community. Even if the construction workers did move, 12 people and their families would be well within the planned growth of 20,076 people over the next 10 years as outlined in the City of Manteca's Municipal Services Review, and thus would not be considered a substantial unplanned growth in population (City of Manteca 2008). Impact would be less than significant.

4.14.1.2 Project Operation

The Proposed Project would improve water quality in the City of Manteca, however, the Project would not result in an expansion of treatment system capacity or an increase in the amount of pumped groundwater or surface water supplies, such that it would result in an increase of water usage for the City's drinking supply. Therefore, the Project would have no impact on the amount of water available for new development, thereby not contributing to an indirect inducement of population growth. The impact would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Displace substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☒	☐

Less Than Significant Impact.

The Project would not displace any existing people or housing. The Project footprint for the Project components would either be built within the existing well site or immediately adjacent to or within the existing neighborhood park and City property. Therefore, the impact to people and housing displacement would be less than significant.

4.14.2 Mitigation Measures

No significant impacts were identified and no mitigation measures are required.

4.15 Public Services

4.15.1 Environmental Setting

The public services in the City of Manteca are provided by the Manteca Fire Department, Manteca Police Department, Manteca Unified School District, and the City of Manteca Parks and Recreation Department.

4.15.2 Public Services (XV) Environmental Checklist and Discussion

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?	☐	☐	☐	☒
Police Protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other Public Facilities?	☐	☐	☐	☒

No Impact.

While the Proposed Project is currently within, and would be expanded in, the western part of the City-owned Yosemite Village Park, the Project would not result in the need for new or altered recreational facilities. As described below in Section 4.17 Recreation, the project would impact only a small amount of park acreage and would still allow for public use at the park during project construction and operation. Additionally, as stated in Section 4.15, Population and Housing, the Proposed Project would not induce unplanned population growth directly or indirectly because it neither proposes new homes or businesses, nor expands water supplies or infrastructure to deliver water supplies. Because there would not be an increase in population, there would be no need for new or physically altered governmental facilities including fire facilities, police facilities, or new schools. Therefore, there would be no impact.

4.15.3 Mitigation Measures

No significant impacts were identified and no mitigation measures are required.

4.16 Recreation

4.16.1 Environmental Setting

The Project is located within the existing approximate 5-acre Yosemite Village Park. The park is within a residential neighborhood and has one basketball court, a small playground, grass fields and scattered picnic benches.

4.16.2 Recreation (XVI) Materials Checklist

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐

Less Than Significant Impact.

The Project proposes to upgrade existing water treatment operations and add additional facilities on City-owned land. The Well 29 site would be permanently expanded but the new footprint would be only slightly larger than the existing one. Therefore, the loss of this portion of the park would not result in the displacement of park visitors from this park to other nearby parks such that their increase in use would result in substantial physical deterioration of their facilities. Additionally, the park would remain open to the public and would not permanently close any feature that would cause visitors to seek out other recreational facilities. Implementation of the Proposed Project would therefore not increase the use of other recreational facilities resulting in a substantial physical deterioration. Project implementation would have a less than significant impact on recreational facilities.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☐	☒

No Impact.

The Project does not propose to construct recreational facilities and would not result in the need for new or expanded recreational facilities. Option B impacts the existing basketball court within the park but the basketball court would be relocated to another area of the park under this option. Therefore, no impact would occur.

4.16.3 Mitigation Measures

No significant impacts were identified and no mitigation measures are required.

4.17 Transportation

4.17.1 Transportation (XVII) Environmental Checklist and Discussion

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?	☐	☐	☒	☐

Less Than Significant Impact.

The Proposed Project would result in short-term traffic increases associated with the following activities: trucks hauling equipment and materials to and from the site; and the daily arrival/departure of construction workers to the sites. Construction of the proposed improvements would be temporary, and therefore would not result in any long-term degradation in roadway operating conditions. Construction trucks traveling to and from the Project Site would include short-term and intermittent lessening of roadway capacities due to slower movements and larger turning radii of the trucks compared to passenger vehicles, which would increase vehicle delay. Operational traffic would be limited to filter backwash maintenance activities approximately once every quarter, which occur during routine operator site visits, and media changeouts approximately once every 2 years; both of these maintenance activities would require very few vehicle/truck trips (i.e., less than five). Due to the infrequent nature and low volume of traffic generated by project operations, no discernable increase in vehicle delay is anticipated. Thus, potential transportation effects would be confined to construction of the proposed facilities.

Construction activities may need to take place within El Portal Avenue to make connections to existing infrastructure under the road; however, one travel lane would remain open to through traffic during that time.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	☐	☐	☒	☐

Less Than Significant Impact.

CEQA Guidelines Section 15064.3 subdivision (b) addresses the criteria for analyzing transportation impacts and establishes the Vehicle Miles Traveled (VMT) metric as the most appropriate measure of transportation impacts in a CEQA document. These revisions to the CEQA Guidelines criteria for determining the significance of transportation impacts are primarily focused on projects within transit priority areas and shifts the focus from driver delay to reduction of GHG emissions, creation of multimodal networks, and promotion of a mix of land uses. VMT, is a measure of the total number of miles driven to

or from a development and is sometimes expressed as an average per trip or per person. In addition, Section 15064.3 of the CEQA Guidelines suggests that the analysis of VMT impacts applies mainly to land use and transportation projects. Furthermore, projects that generate or attract fewer than 110 operational trips per day would generally be exempt from further consideration with respect to VMT and impacts are assumed to be less than significant. Per this guidance, since the Proposed Project is neither a land use nor a transportation project, and would generate very few operational trips, it can be assumed to have a less than significant impact with respect to VMT.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☒	☐	☐

Less Than Significant With Mitigation Incorporated

The Proposed Project includes adding water treatment equipment and appurtenances to the existing Well 29 water treatment system to treat potable water to remove TCP within the City of Manteca. The Proposed Project does not include the construction of a new roadway or intersection, which could be determined to be a hazardous design feature. Therefore, the Project would not result in a hazard associated with a geometric design feature (e.g., sharp curves or dangerous intersections).

Regarding the potential to result in a hazard associated with incompatible uses, construction of the Proposed Project would include the use of heavy trucks to bring construction materials to and from the Project Area. While local drivers could experience increased travel times if they were traveling behind a heavy truck due to slower movement and turning radii compared to passenger vehicles, these delays would be intermittent throughout the day and would cease once construction activities are completed. Further, heavy trucks are typical of construction activities and are not considered a roadway hazard. However, construction of the facility included under the Proposed Project would require partial road closures, which could result in hazardous driving conditions; a significant impact associated with incompatible uses. However, implementation of Mitigation Measure TRAF-1 would require the preparation and implementation of a Traffic Control Plan, which would be prepared to minimize the impact. With implementation of TRAF-1 this impact would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Result in inadequate emergency access?	☐	☒	☐	☐

Less Than Significant With Mitigation Incorporated.

Construction activities could cause delays to vehicles traveling along El Portal Avenue. Although emergency vehicles could continue to travel through the construction zone as they do today, slower

speeds/vehicle delays could increase emergency vehicle response times, a significant impact with respect to inadequate emergency access. Implementation of Mitigation Measure TRAF-1 would require the construction contractor to notify local emergency responders of any planned partial- or full-lane closures or blocked access to roadways or driveways required for Project construction. Emergency responders include fire departments, police departments, and ambulances that have jurisdiction within the Project Area. Written notification and disclosure of lane closure location must be provided at least 30 days prior to the planned closure to allow emergency response providers adequate time to prepare for lane closures. In addition, it would require the construction contractor to establish methods for maintaining traffic flow in and along the subject roadway corridor and minimizing disruption to emergency vehicle access to land uses along the alignment. With implementation of Mitigation Measure TRAF-1, impacts related to temporary effects on emergency access would be mitigated to a less than significant level.

4.17.2 Mitigation Measures

TRANS-1: Prior to the start of construction of the Project, the City shall require the construction contractor to prepare a Traffic Control Plan. The Traffic Control Plan shall be prepared in accordance with the City's traffic control guidelines and shall contain, at a minimum, the following elements:

- Provide written notice at least 2 weeks prior to the start of construction to owners/occupants along streets affected during construction.
- Signage, striping, delineated detours, flagging operations and any other devices will be used during construction to guide motorists, bicyclists, and pedestrians safely through the construction area and allow for adequate access and circulation.
- Designate detours or alternative routes for bicyclists using affected bicycle lanes as well as for pedestrians using adjacent sidewalks.
- Maintain continuous vehicular and pedestrian access to any affected residential driveways from the public street to the private property line, except where necessary construction precludes such continuous access for reasonable periods of time. Access will be reestablished at the end of the workday. If a driveway needs to be closed or interfered with as described above, the City shall notify the owner or occupant of the closure of the driveway at least 5 working days prior to the closure.
- Ensure that the construction of the Project does not interfere unnecessarily with the work of other agencies such as mail delivery, school buses, and municipal waste services.
- Notify local emergency responders of any planned partial- or full-lane closures or blocked access to roadways or driveways required for Project construction. Emergency responders include fire departments, police departments, and ambulances that have jurisdiction within the Project Area. Written notification and disclosure of lane closure location must be provided at least 30 days prior to the planned closure to allow emergency response providers adequate time to prepare for lane closures.

4.18 Tribal Cultural Resources

The following analysis of the potential environmental impacts related to Tribal Cultural Resources (TCRs) is derived primarily from the following sources and agencies:

- California NAHC Sacred Lands File Search, March 28, 2023; and
- Cultural Resources Due Diligence Review for the HydroScience-TO1 Manteca Well 29 TCP Project, San Joaquin County, California (ECORP 2023).

4.18.1 Environmental Setting

4.18.1.1 Ethnographic History and Cultural Context

The Project Area is associated with territory occupied by the Penutian-speaking Northern Valley Yokuts. Their territory extends from a point just south of the junction of the San Joaquin, Old, and Mokelumne rivers on the north, to a point south of a large eastward bend in the San Joaquin River. Unfortunately, the ethnography of the northern, or lower, San Joaquin Valley is poorly known, due to the fact that the native inhabitants were for the most part gone by the time studies were undertaken. Disease, flight from missionization, and conflicts with the miners and settlers who suddenly entered the area in large numbers reduced the native population to small, isolated remnants. Thus, the available information has been gleaned from historic accounts of early explorers, soldiers, hunters and trappers, missionaries, etc. Archaeology has added some information, but the record is by no means complete (ECORP 2023).

The Yokuts, (meaning "person" or "people") who were Penutian/Yokutsan speakers, were divided into three distinct groups: the Northern Valley Yokuts, the Southern Valley Yokuts, and the Foothills Yokuts. These groups spoke different dialects, and were separated by topography (ECORP 2023). Controversy surrounds the date for Yokuts presence in the northern part of the San Joaquin Valley. Linguistic studies suggest that the Northern Valley Yokuts were relatively recent arrivals, moving from the south about 500 years ago as a result of pressure from Numic speakers moving into the San Joaquin drainage from the west. However, it is suggested that a Yokuts presence in the Stockton area can be discerned in the archaeological record before AD 400. A drier climate in the lower foothills and valley edges may have triggered occupation of the riverbanks in the central valley at that time. In any case, by the time the Spanish arrived in the early part of the nineteenth century, the Northern Valley Yokuts were well entrenched, with established settlements on low mounds in the delta and along the banks of the San Joaquin River and its tributaries. Population estimates for the entire San Joaquin Valley range from 11,000 to over 52,000, but these are only estimates, and the true population is not known (ECORP 2023).

Village settlements were composed of small round to oval house structures, which were closely spaced in a row along a riverbank. Houses were covered with light, woven tule reed mats. Villages were located mostly along the eastern bank of the San Joaquin River and along its tributaries. Sweathouses and ceremonial chambers were also found in these villages (ECORP 2023). Territories of the tribes within the Yokuts group averaged about 300 square miles, which he suggests is about a half-day's walk in each direction. Though no records exist, it is likely that social organization was centered on the family. It has been suggested that the Southern Valley Yokuts were divided into two moieties based on patrilineal

descent, and this may have also been true for those in the north (ECORP 2023). However, marriage was matrilocal, with the groom moving in with the bride's family. Polygamy was also practiced, with wives located in several villages, thus creating ties and alliances between dispersed groups (ECORP 2023).

Not surprisingly, given their proximity to rivers and the delta, a large part of Northern Valley Yokuts subsistence was based on fishing. King salmon, which spawned in the San Joaquin River and its tributaries, were an important resource, but the Yokuts made use of other native species such as white sturgeon, river perch, western suckers, and Sacramento pike. Dragnets with stone sinkers were used, as were harpoons with bone or antler tips (ECORP 2023).

In addition, the enormous populations of waterfowl present in the valley were exploited, as were the large herds of tule elk and pronghorn antelope. It is thought, however, that hunting was a marginal resource procurement activity, when compared to fishing. Gathering of plant resources, though, was as important as fishing, with acorns from the stands of huge valley oaks being a major component of this activity. Tule roots and a variety of seeds were also utilized (ECORP 2023).

Like their Nisenan neighbors to the north, the Northern Valley Yokuts were politically organized into tribelets, estimated to be of about 300 people each. Tribelets known to be in the Delta area were the Chulamni, the Cholbones, the Coybos, and the Nototemnes. A tribelet identified as the Lakisamne and Chulamni reportedly lived near the Project Area (ECORP 2023). Generally sedentary, the Northern Valley Yokuts would disperse seasonally for hunting and gathering expeditions and were sometimes forced out by flooding (ECORP 2023). Chiefs gained their position through wealth, and since women were occasionally chiefs, inheritance appears to have been important (ECORP 2023).

The Spanish arrived on the coast in 1769, and by 1776 the central valley had been explored by José Canizares. In 1808, the area was crossed by Gabriel Moraga, and in 1813, a major battle was fought between the Miwok to the north and the Spaniards near the mouth of the Cosumnes River. Though the Yokuts appear to have escaped being removed to missions by the Spanish, they were not spared the ravages of European-spread disease. In 1833, an epidemic – probably malaria – raged through the Sacramento and San Joaquin valleys, killing an estimated 75% of the native population. Not far to the north, when John Sutter erected his fort at the future site of Sacramento, he had no problem getting the few neighboring Nisenan survivors to settle nearby. The discovery of gold in 1848, near the Nisenan village of Colluma (also Coloma), drew thousands of miners into the area, and led to widespread killing and devastating consequences to traditional Nisenan and Yokuts cultures (ECORP 2023).

4.18.2 Regulatory Setting

4.18.2.1 Assembly Bill 52

Effective July 1, 2015, AB 52 amended CEQA to require that: 1) a lead agency provide notice to those California Native American tribes that requested notice of projects proposed by the lead agency; and 2) for any tribe that responded to the notice within 30 days of receipt with a request for consultation, the lead agency must consult with the tribe. Topics that may be addressed during consultation include TCRs, the potential significance of project impacts, type of environmental document that should be prepared, and possible mitigation measures and project alternatives.

Pursuant to AB 52, Section 21073 of the PRC defines California Native American tribes as "a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of the Statutes of 2004." This includes both federally and non-federally recognized tribes.

Section 21074(a) of the PRC defines TCRs for the purpose of CEQA as:

1) Sites, features, places, cultural landscapes (geographically defined in terms of the size and scope), sacred places, and objects with cultural value to a California Native American tribe that are either of the following:

    a. included or determined to be eligible for inclusion in the CRHR; and/or

    b. included in a local register of historical resources as defined in subdivision (k) of Section 5020.1; and/or

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

Because criteria a and b also meet the definition of an Historical Resource under CEQA, a TCR may also require additional consideration as an Historical Resource. TCRs may or may not exhibit archaeological, cultural, or physical indicators.

Recognizing that California tribes are experts in their tribal cultural resources and heritage, AB 52 requires that CEQA lead agencies provide tribes that requested notification an opportunity to consult at the commencement of the CEQA process to identify TCRs. Furthermore, because a significant effect on a TCR is considered a significant impact on the environment under CEQA, consultation is used to develop appropriate avoidance, impact minimization, and mitigation measures.

4.18.2.1 Significance Criteria

AB 52 established that a substantial adverse change to a TCR has a significant effect on the environment. In assessing substantial adverse change, the City must determine whether or not the Project will adversely affect the qualities of the resource that convey its significance. The qualities are expressed through integrity. Integrity of a resource is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association [CCR Title 14, § 4852(c)]. Impacts are significant if the resource is demolished or destroyed or if the characteristics that made the resource eligible are materially impaired [CCR Title 14, §15064.5(a)]. Accordingly, impacts to a TCR would likely be significant if the Project negatively affects the qualities of integrity that made it significant in the first place. In making this determination, the City need only address the aspects of integrity that are important to the TCR's significance.

4.18.3 Summary of Tribal Consultation

AB 52 consultation requirements went into effect on July 1, 2015, for all projects that have not already published a Notice of Intent to Adopt a Negative Declaration or Mitigated Negative Declaration or published a Notice of Preparation of an EIR (Section 11 [c]). The lead agency (City) is responsible for carrying out AB 52 consultation. At this time, City has not received any formal written requests from any tribes for AB 52 consultation on City projects in accordance with PRC § 21080.3.1(d).

The lead agency (City) sent letters on June 12, 2023 to all individuals identified by the NAHC. As of the circulation of this draft, no response has been received.

4.18.4 Tribal Cultural Resources

In the absence of tribes wishing to consult, information about potential impacts to TCRs was drawn from: 1) the results of a search of the Sacred Lands File of the NAHC; 2) existing ethnographic information about pre-contact lifeways and settlement patterns; and 3) information on archaeological site records obtained from the CHRIS.

4.18.4.1 Sacred Lands File Search

A search of the NAHC Sacred Lands File was requested on March 28, 2023. A search of the Sacred Lands File by the NAHC was returned on April 12, 2023 and failed to indicate the presence of Native American cultural resources in the Project Area.

4.18.4.2 Potential for Buried Tribal Cultural Resources

Certain geological characteristics and formations are more likely to be of concern for archaeological materials. The underlying geomorphology of this area consists of sediments deposited during flood stages of major streams in areas between natural stream levees and alluvial fans, and are probably of late Pleistocene age (California Geological Survey 2023). This means that the parcel exhibits alluvial sediments deposited by ancient and recent water flow, which can mask archaeological sites. Holocene (approximately 12,000 years ago to present) alluvial deposits are geological landforms in which Native American archaeological deposits that are not visible on the surface may be present.

The one soil type present in the Project Area is Delhi-Urban land complex, 0 to 2 percent slopes. Typically, Delhi-type sand and soils indicate a higher probability of buried archaeological deposits; however, that probability is reduced by the mixing of Urban land soil types, and further reduced by past disturbances by previous agricultural endeavors and more recent development of urban sprawl. It is likely that archaeological remains within the Project Area, if any, would have been destroyed during the installation of Well 29 and the development of the neighborhood surrounding the Project Area.

4.18.5 Tribal Cultural Resources (XVIII) Environmental Checklist and Discussion

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	☐	☐	☐	☒
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 With Mitigation Incorporated.

In assessing potential for buried archaeological sites, ECORP reviewed reasonably available information regarding natural water and soils. The presence of natural water sources is often an indicator for the potential presence of archaeological resources because pre-contact Native American communities and post-contact European-American and Native American communities exploited natural water courses for a variety of subsistence and economic resources. The region falls under the traditionally recognized lands of the Native American tribe, Northern Valley Yokuts. The Northern Valley Yokuts' ancestral territory encompasses the Project Area. Typically, there is a greater concentration of archaeological resources along bays and major rivers than in areas farther from a primary water source. No natural waterways appear associated with the parcel in historic maps and aerial photographs, although the San Joaquin River is located approximately 4 miles west of the Project Area. Through this investigation, no TCRs were identified within the Project Area.

While there are no known TCRs associated with the Project Area and immediate vicinity, if any previously unrecorded archaeological resources are identified during ground-disturbing construction-related activities and are found to qualify as a TCR pursuant to PRC Section 21074(a)(1) (determined to be eligible

for listing in the California Register or in a local register of historical resources), any impacts to the resource resulting from the Project could be potentially significant. Potential significant impacts would be reduced to a less than significant level by implementing Mitigation Measure TCR-1 – Unanticipated Discovery of Tribal Cultural Resources and Mitigation Measures CUL-1 and CUL-2, which ensures that work immediately halt in the vicinity of a find until a qualified archaeologist can make an assessment and provide additional recommendations if necessary, including contacting Native American tribes.

4.18.6 Mitigation Measures

TCR-1: **Unanticipated Discovery of Tribal Cultural Resources.** If potentially significant TCRs are discovered during ground disturbing activities, all work shall cease within 50 feet of the find. A Native American Representative from traditionally and culturally affiliated Native American Tribes that requested consultation on the Project shall be immediately contacted and invited to assess the significance of the find and make recommendations for further evaluation and treatment, as necessary. If deemed necessary by the City, a qualified cultural resources specialist, who meets the Secretary of Interior's Standards and Qualifications for Archaeology, may also assess the significance of the find in joint consultation with Native American representatives to ensure that Tribal values are considered. Work at the discovery location cannot resume until the City, in consultation as appropriate and in good faith, determines that the discovery is either not a TCR, or has been subjected to culturally appropriate treatment, if avoidance and preservation cannot be accommodated.

4.19 Utilities and Service Systems

4.19.1 Utilities and Service Systems (XIX) Environmental Checklist and Discussion

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?	☐	☐	☒	☐

Less Than Significant Impact.

The Project consists of adding new water treatment equipment to an existing facility, which is the subject of this IS/MND. The impacts of the water treatment improvements are discussed throughout this document. The Project would require only minimal adjustments to other utilities, and thus the impact would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	☒	☐

Less Than Significant Impact.

The Project would require a limited amount of water during construction for dust control and other construction-related purposes. This would be for a limited timeframe and therefore would have a less than significant impact on water supplies. The Project would be adding a filtration system to the existing Well 29 and would not require additional water usage (above what is currently being used) for operation of the facility.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	☐	☒	☐

Less Than Significant Impact.

The Project would create additional wastewater through the backwash water created from the GAC vessels. However, to reduce the impact on the existing wastewater treatment provider, design considerations have been incorporated. In particular, the backwash water would be buffered in a backwash equalization tank and subsequently gradually drained into the sewer system at a rate within the sewer system capacity. This additional backwash water would be metered to the sewer infrequently, approximately once per quarter (every 3 months), and would be slowly drained to the sewer at a rate of approximately 300 gpm. The wastewater would be transported via the existing sewer system from the Project Site to the Manteca Water Quality Control Facility (WQCF), located at 2450 West Yosemite Avenue in the southwest corner of the city. The WQCF currently treats up to approximately 6.5 million gallons per day (MGD) and is currently permitted to treat up to 9.87 MGD. The infrequency of the backwash disposal and the slow drain rate would be managed to ensure it is within the sewer system's permitted capacity. These factors would minimize the impact to the existing wastewater treatment provider and therefore be a less than significant impact.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐

Less Than Significant Impact.

Construction of the Proposed Project would create a minimal amount of solid waste. The Project does not involve demolition of facilities. Any solid waste created by the Project would be transported to the Lovelace Materials Recovery Facility and Transfer Station, where waste is then transported to Foothill Sanitary Landfill. Project construction would not generate solid waste beyond levels normally found in similar projects and within the capacity of the Foothill landfill. The Project would comply with County Municipal Code related to solid waste, which applies to the Foothill Sanitary Landfill (San Joaquin County 2019), as well as the City of Manteca's Municipal Code related to construction and demolition waste, by recycling all recyclable materials (City of Manteca 2019). Waste generated by Project operation would also comply with relevant statutes and codes for San Joaquin County and the City of Manteca and therefore, would have a less than significant impact related to compliance with solid waste management and reduction statutes.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

Less Than Significant Impact.

Please see above discussion (d).

4.19.2 Mitigation Measures

No significant impacts were identified and no mitigation measures are required.

4.20 Wildfire

4.20.1 Wildfire (XX) Environmental Checklist and Discussion

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?	☐	☐	☐	☒

No Impact.

CAL FIRE has published Draft Fire Hazard Severity Zones for both Local Responsibility Areas (LRA) and State Responsibility Areas (SRA). SRAs are the official boundaries where the State of California (through CAL FIRE) has the primary legal and financial responsibility for the prevention and suppression of wildland fires. LRAs include incorporated cities and densely populated areas. Fire protection within these areas is typically provided by the city fire departments, fire protection districts, counties, and by CAL FIRE under contract to local governments (CAL FIRE 2022). These maps give areas either a *moderate*, *high*, or *very high fire hazard* rating classification. The Project Site is neither located within or near an area designated as an SRA nor is it classified as very high fire hazard severity zone or located near a very high fire hazard severity zone. The Project Site is mapped as LRA Unzoned (CAL FIRE 2012). The Project Site is within developed/urbanized areas within the City of Manteca and is not within a wildland-urban interface. Therefore, the Project would not result in a substantial impact related to lands within very high fire hazard severity zones.

Further, the Project is located in a relatively flat area, not subject to factors that exacerbate wildfire risks and without downslope areas that could be affected by post-fire slope instability or drainage changes. The Project does not include installation or maintenance of infrastructure that may exacerbate fire risks, such as new roads or fuel breaks, or new power lines. The Project is not within a high fire hazard severity zone, and therefore there is no impact associated with such zones.

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
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose Project occupants to, pollutant concentrations from, a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒

No Impact.

See discussion above (a). The Project is not in or near an SRA or lands classified as very high fire hazard severity zone. Therefore, there is no impact on this criterion.

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
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?	☐	☐	☐	☒

No Impact.

See discussion above (a). The Project is not in or near an SRA or lands classified as very high fire hazard severity zone. Therefore, there is no impact on this criterion.

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
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

No Impact.

See discussion above (a). The Project is in or near an SRA or lands classified as very high fire hazard severity zone. Therefore, there is no impact on this criterion.

4.20.2 Mitigation Measures

No significant impacts were identified and no mitigation measures are required.

4.21 Mandatory Findings of Significance

4.21.1 Mandatory Findings of Significance (XXI) Environmental Checklist and Discussion

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?	☐	☒	☐	☐

Less Than Significant Impact.

Potentially significant impacts for biological resources, have been identified and can be mitigated to a less than significant level by implementing Mitigation Measures BIO-1 and BIO-2 and are not expected to degrade environmental quality, or substantially reduce the habitat or affect populations of any wildlife, fish, or plant species. It has been determined that construction of the Proposed Project would not have any impact on any examples of the major periods of California history or prehistory. Mitigation Measures CUL-1 and CUL-2 would be implemented to ensure that any impacts resulting from the incidental discovery of cultural resources, human remains, or TCRs during construction would be less than significant with mitigation implementation.

Does the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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)?	☐	☐	☒	☐

Less Than Significant Impact.

In accordance with CEQA Guidelines Section 15183, the environmental analysis in this IS was conducted to determine if there were any Project-specific effects that are peculiar to the Project or its sites. Consideration of past, present, and reasonably foreseeable projects in the Project Area and vicinity

indicate that the Proposed Project would have a less than significant impact. No Project-specific significant effects peculiar to the Project or its sites were identified that could not be mitigated to a less than significant level. The Proposed Project would contribute to environmental effects in the areas of biological resources, cultural resources, and transportation. Mitigation measures incorporated herein mitigate any potential contribution to cumulative impacts associated with these environmental issues to a less than significant level and would preclude the Project from making a substantial contribution to cumulative impacts associated with the implementation of nearby ongoing or upcoming projects. Therefore, the Proposed Project does not have impacts that are individually limited, but cumulatively considerable.

Does the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Less Than Significant Impact.

Direct and indirect impacts to human beings would be less than significant with the implementation of mitigation measures listed in this IS. The Project could result in significant adverse effects on human beings during construction due to the potential hazard of impaired emergency response during construction caused by planned partial lane closure. This impact along with the potential impact from construction-related impacts to vehicle delay and bicycle and pedestrian access would be reduced to less than significant with mitigation TRAF-1, Traffic Control Plan incorporated. There are no significant environmental effects related to air quality.

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Air Quality/Climate Change Modeling, ECORP 2023

Well 29 Project Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Well 29 Project
Construction Start Date	3/1/2024
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.40
Precipitation (days)	9.00
Location	600 El Portal Ave, Manteca, CA 95337, USA
County	San Joaquin
City	Manteca
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2159
EDFZ	4
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.12

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Non-Asphalt Surfaces	33.0	1000sqft	0.76	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-9	Use Dust Suppressants
Construction	C-10-A	Water Exposed Surfaces
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads
Construction	C-12	Sweep Paved Roads

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.79	1.51	11.3	11.7	0.03	0.44	0.13	0.56	0.40	0.03	0.43	—	3,767	3,767	0.15	0.03	0.57	3,782
Mit.	1.79	1.51	11.3	11.7	0.03	0.44	0.13	0.56	0.40	0.03	0.43	—	3,767	3,767	0.15	0.03	0.57	3,782
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.78	1.50	11.3	11.5	0.03	0.44	0.13	0.56	0.40	0.03	0.43	—	3,754	3,754	0.15	0.03	0.01	3,768
Mit.	1.78	1.50	11.3	11.5	0.03	0.44	0.13	0.56	0.40	0.03	0.43	—	3,754	3,754	0.15	0.03	0.01	3,768
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unmit.	0.19	0.18	1.11	1.24	< 0.005	0.04	0.01	0.05	0.04	< 0.005	0.04	—	337	337	0.01	< 0.005	0.02	338
Mit.	0.19	0.18	1.11	1.24	< 0.005	0.04	0.01	0.05	0.04	< 0.005	0.04	—	337	337	0.01	< 0.005	0.02	338
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.03	0.03	0.20	0.23	< 0.005	0.01	< 0.005	0.01	0.01	< 0.005	0.01	—	55.8	55.8	< 0.005	< 0.005	< 0.005	56.0
Mit.	0.03	0.03	0.20	0.23	< 0.005	0.01	< 0.005	0.01	0.01	< 0.005	0.01	—	55.8	55.8	< 0.005	< 0.005	< 0.005	56.0
% Reduced	—	—	—	—	—	—	< 0.5%	< 0.5%	—	—	—	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.79	1.51	11.3	11.7	0.03	0.44	0.13	0.56	0.40	0.03	0.43	—	3,767	3,767	0.15	0.03	0.57	3,782
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.78	1.50	11.3	11.5	0.03	0.44	0.13	0.56	0.40	0.03	0.43	—	3,754	3,754	0.15	0.03	0.01	3,768
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.19	0.18	1.11	1.24	< 0.005	0.04	0.01	0.05	0.04	< 0.005	0.04	—	337	337	0.01	< 0.005	0.02	338
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.03	0.03	0.20	0.23	< 0.005	0.01	< 0.005	0.01	0.01	< 0.005	0.01	—	55.8	55.8	< 0.005	< 0.005	< 0.005	56.0

2.3. Construction Emissions by Year, Mitigated

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.79	1.51	11.3	11.7	0.03	0.44	0.13	0.56	0.40	0.03	0.43	—	3,767	3,767	0.15	0.03	0.57	3,782
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.78	1.50	11.3	11.5	0.03	0.44	0.13	0.56	0.40	0.03	0.43	—	3,754	3,754	0.15	0.03	0.01	3,768
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.19	0.18	1.11	1.24	< 0.005	0.04	0.01	0.05	0.04	< 0.005	0.04	—	337	337	0.01	< 0.005	0.02	338
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.03	0.03	0.20	0.23	< 0.005	0.01	< 0.005	0.01	0.01	< 0.005	0.01	—	55.8	55.8	< 0.005	< 0.005	< 0.005	56.0

3. Construction Emissions Details

3.1. Demolition (2024) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15	0.97	6.91	7.17	0.02	0.26	—	0.26	0.24	—	0.24	—	2,635	2,635	0.11	0.02	—	2,644
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.19	0.20	< 0.005	0.01	—	0.01	0.01	—	0.01	—	72.2	72.2	< 0.005	< 0.005	—	72.4
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	< 0.005	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.0	12.0	< 0.005	< 0.005	—	12.0
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.45	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	85.4	85.4	0.01	< 0.005	0.01	86.6
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.40	2.40	< 0.005	< 0.005	< 0.005	2.43
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.40	0.40	< 0.005	< 0.005	< 0.005	0.40
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.2. Demolition (2024) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15	0.97	6.91	7.17	0.02	0.26	—	0.26	0.24	—	0.24	—	2,635	2,635	0.11	0.02	—	2,644
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.19	0.20	< 0.005	0.01	—	0.01	0.01	—	0.01	—	72.2	72.2	< 0.005	< 0.005	—	72.4
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	< 0.005	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.0	12.0	< 0.005	< 0.005	—	12.0

Demolitio	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.45	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	85.4	85.4	0.01	< 0.005	0.01	86.6
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.40	2.40	< 0.005	< 0.005	< 0.005	2.43
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.40	0.40	< 0.005	< 0.005	< 0.005	0.40
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Grading (2024) - Unmitigated

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

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

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.60	0.51	3.78	4.31	0.01	0.14	—	0.14	0.13	—	0.13	—	1,418	1,418	0.06	0.01	—	1,423
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.10	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	38.8	38.8	< 0.005	< 0.005	—	39.0
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.43	6.43	< 0.005	< 0.005	—	6.45
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.22	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	42.7	42.7	< 0.005	< 0.005	< 0.005	43.3
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.06	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	50.0	50.0	< 0.005	0.01	< 0.005	52.4
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.20	1.20	< 0.005	< 0.005	< 0.005	1.22
Vendor	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	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.37	1.37	< 0.005	< 0.005	< 0.005	1.44
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.20	0.20	< 0.005	< 0.005	< 0.005	0.20
Vendor	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	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.23	0.23	< 0.005	< 0.005	< 0.005	0.24

3.4. Grading (2024) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.60	0.51	3.78	4.31	0.01	0.14	—	0.14	0.13	—	0.13	—	1,418	1,418	0.06	0.01	—	1,423

Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.10	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	38.8	38.8	< 0.005	< 0.005	—	39.0
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.43	6.43	< 0.005	< 0.005	—	6.45
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.22	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	42.7	42.7	< 0.005	< 0.005	< 0.005	43.3
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.06	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	50.0	50.0	< 0.005	0.01	< 0.005	52.4

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.20	1.20	< 0.005	< 0.005	< 0.005	1.22
Vendor	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	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.37	1.37	< 0.005	< 0.005	< 0.005	1.44
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.20	0.20	< 0.005	< 0.005	< 0.005	0.20
Vendor	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	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.23	0.23	< 0.005	< 0.005	< 0.005	0.24

3.5. Paving (2024) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.08	0.90	6.18	5.83	0.02	0.22	—	0.22	0.21	—	0.21	—	2,426	2,426	0.10	0.02	—	2,434
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.17	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	66.5	66.5	< 0.005	< 0.005	—	66.7
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.0	11.0	< 0.005	< 0.005	—	11.0
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.57	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	94.5	94.5	< 0.005	< 0.005	0.38	96.1
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.40	2.40	< 0.005	< 0.005	< 0.005	2.43
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.40	0.40	< 0.005	< 0.005	< 0.005	0.40
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.6. Paving (2024) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.08	0.90	6.18	5.83	0.02	0.22	—	0.22	0.21	—	0.21	—	2,426	2,426	0.10	0.02	—	2,434
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.17	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	66.5	66.5	< 0.005	< 0.005	—	66.7
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.0	11.0	< 0.005	< 0.005	—	11.0
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.57	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	94.5	94.5	< 0.005	< 0.005	0.38	96.1
Vendor	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	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.40	2.40	< 0.005	< 0.005	< 0.005	2.43
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.40	0.40	< 0.005	< 0.005	< 0.005	0.40
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Architectural Coating (2024) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	0.27	1.82	2.29	< 0.005	0.06	—	0.06	0.06	—	0.06	—	267	267	0.01	< 0.005	—	268
Architectural Coatings	—	0.14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.33	0.42	< 0.005	0.01	—	0.01	0.01	—	0.01	—	49.0	49.0	< 0.005	< 0.005	—	49.2
Architectural Coatings	—	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.12	8.12	< 0.005	< 0.005	—	8.14
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	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	0.00
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.8. Architectural Coating (2024) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	0.27	1.82	2.29	< 0.005	0.06	—	0.06	0.06	—	0.06	—	267	267	0.01	< 0.005	—	268
Architectural Coatings	—	0.14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.33	0.42	< 0.005	0.01	—	0.01	0.01	—	0.01	—	49.0	49.0	< 0.005	< 0.005	—	49.2
Architectural Coatings	—	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.01	0.01	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.12	8.12	< 0.005	< 0.005	—	8.14
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Trenching (2024) - Unmitigated

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

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

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.72	1.44	11.2	10.8	0.03	0.44	—	0.44	0.40	—	0.40	—	3,626	3,626	0.15	0.03	—	3,638
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.72	1.44	11.2	10.8	0.03	0.44	—	0.44	0.40	—	0.40	—	3,626	3,626	0.15	0.03	—	3,638
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.31	0.30	< 0.005	0.01	—	0.01	0.01	—	0.01	—	99.3	99.3	< 0.005	< 0.005	—	99.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	16.4	16.4	< 0.005	< 0.005	—	16.5
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.05	0.85	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	142	142	0.01	0.01	0.57	144
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.67	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	128	128	0.01	0.01	0.01	130
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.60	3.60	< 0.005	< 0.005	0.01	3.65
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.60	0.60	< 0.005	< 0.005	< 0.005	0.60
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.10. Trenching (2024) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.72	1.44	11.2	10.8	0.03	0.44	—	0.44	0.40	—	0.40	—	3,626	3,626	0.15	0.03	—	3,638
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.72	1.44	11.2	10.8	0.03	0.44	—	0.44	0.40	—	0.40	—	3,626	3,626	0.15	0.03	—	3,638
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.31	0.30	< 0.005	0.01	—	0.01	0.01	—	0.01	—	99.3	99.3	< 0.005	< 0.005	—	99.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	16.4	16.4	< 0.005	< 0.005	—	16.5
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.05	0.85	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	142	142	0.01	0.01	0.57	144
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.67	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	128	128	0.01	0.01	0.01	130
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.60	3.60	< 0.005	< 0.005	0.01	3.65
Vendor	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	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.60	0.60	< 0.005	< 0.005	< 0.005	0.60
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

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

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

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

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

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

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

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

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

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

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

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

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

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

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

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

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

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

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description

Demolition	Demolition	3/1/2024	3/14/2024	5.00	10.0	—
Grading	Grading	3/15/2024	3/28/2024	5.00	10.0	—
Paving	Paving	4/12/2024	4/25/2024	5.00	10.0	—
Miscellaneous Activities	Architectural Coating	4/26/2024	7/29/2024	5.00	67.0	—
Underground piping & electrical	Trenching	3/29/2024	4/11/2024	5.00	10.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Off-Highway Trucks	Diesel	Average	2.00	7.00	376	0.38
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	1.00	7.00	84.0	0.37
Demolition	Dumpers/Tenders	Diesel	Average	1.00	7.00	16.0	0.38
Grading	Off-Highway Trucks	Diesel	Average	1.00	7.00	376	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	1.00	7.00	84.0	0.37
Paving	Off-Highway Trucks	Diesel	Average	2.00	7.00	376	0.38
Paving	Cement and Mortar Mixers	Diesel	Average	2.00	7.00	10.0	0.56
Miscellaneous Activities	Off-Highway Trucks	Diesel	Average	2.00	6.00	37.0	0.48
Underground piping & electrical	Off-Highway Trucks	Diesel	Average	2.00	7.00	376	0.38
Underground piping & electrical	Tractors/Loaders/Backhoes	Diesel	Average	1.00	7.00	84.0	0.37
Underground piping & electrical	Cranes	Diesel	Average	1.00	7.00	367	0.29
Underground piping & electrical	Dumpers/Tenders	Diesel	Average	1.00	7.00	16.0	0.38

Underground piping & electrical	Rollers	Diesel	Average	1.00	7.00	36.0	0.38

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Off-Highway Trucks	Diesel	Average	2.00	7.00	376	0.38
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	1.00	7.00	84.0	0.37
Demolition	Dumpers/Tenders	Diesel	Average	1.00	7.00	16.0	0.38
Grading	Off-Highway Trucks	Diesel	Average	1.00	7.00	376	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	1.00	7.00	84.0	0.37
Paving	Off-Highway Trucks	Diesel	Average	2.00	7.00	376	0.38
Paving	Cement and Mortar Mixers	Diesel	Average	2.00	7.00	10.0	0.56
Miscellaneous Activities	Off-Highway Trucks	Diesel	Average	2.00	6.00	37.0	0.48
Underground piping & electrical	Off-Highway Trucks	Diesel	Average	2.00	7.00	376	0.38
Underground piping & electrical	Tractors/Loaders/Backhoes	Diesel	Average	1.00	7.00	84.0	0.37
Underground piping & electrical	Cranes	Diesel	Average	1.00	7.00	367	0.29
Underground piping & electrical	Dumpers/Tenders	Diesel	Average	1.00	7.00	16.0	0.38
Underground piping & electrical	Rollers	Diesel	Average	1.00	7.00	36.0	0.38

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	10.0	11.9	LDA,LDT1,LDT2
Demolition	Vendor	—	9.10	HHDT,MHDT
Demolition	Hauling	0.00	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	5.00	11.9	LDA,LDT1,LDT2
Grading	Vendor	—	9.10	HHDT,MHDT
Grading	Hauling	0.70	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	10.0	11.9	LDA,LDT1,LDT2
Paving	Vendor	—	9.10	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Underground piping & electrical	—	—	—	—
Underground piping & electrical	Worker	15.0	11.9	LDA,LDT1,LDT2
Underground piping & electrical	Vendor	—	9.10	HHDT,MHDT
Underground piping & electrical	Hauling	0.00	20.0	HHDT
Underground piping & electrical	Onsite truck	—	—	HHDT
Miscellaneous Activities	—	—	—	—
Miscellaneous Activities	Worker	0.00	11.9	LDA,LDT1,LDT2
Miscellaneous Activities	Vendor	—	9.10	HHDT,MHDT
Miscellaneous Activities	Hauling	0.00	20.0	HHDT
Miscellaneous Activities	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	10.0	11.9	LDA,LDT1,LDT2
Demolition	Vendor	—	9.10	HHDT,MHDT
Demolition	Hauling	0.00	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	5.00	11.9	LDA,LDT1,LDT2
Grading	Vendor	—	9.10	HHDT,MHDT
Grading	Hauling	0.70	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	10.0	11.9	LDA,LDT1,LDT2
Paving	Vendor	—	9.10	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Underground piping & electrical	—	—	—	—
Underground piping & electrical	Worker	15.0	11.9	LDA,LDT1,LDT2
Underground piping & electrical	Vendor	—	9.10	HHDT,MHDT
Underground piping & electrical	Hauling	0.00	20.0	HHDT
Underground piping & electrical	Onsite truck	—	—	HHDT
Miscellaneous Activities	—	—	—	—
Miscellaneous Activities	Worker	0.00	11.9	LDA,LDT1,LDT2
Miscellaneous Activities	Vendor	—	9.10	HHDT,MHDT
Miscellaneous Activities	Hauling	0.00	20.0	HHDT
Miscellaneous Activities	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Miscellaneous Activities	0.00	0.00	0.00	0.00	1,980

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	—	—
Grading	—	50.0	0.00	0.00	—
Paving	0.00	0.00	0.00	0.00	0.76

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Other Non-Asphalt Surfaces	0.76	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

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

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

5.18.2.2. Mitigated

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

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

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

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	20.4	annual days of extreme heat
Extreme Precipitation	1.60	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

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

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A

Wildfire	N/A	N/A	N/A	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

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

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

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

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

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

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	57.8
AQ-PM	55.8
AQ-DPM	30.9
Drinking Water	99.0
Lead Risk Housing	81.1
Pesticides	35.8
Toxic Releases	47.1
Traffic	17.4
Effect Indicators	—
CleanUp Sites	31.2
Groundwater	33.0
Haz Waste Facilities/Generators	43.7
Impaired Water Bodies	0.00
Solid Waste	39.3
Sensitive Population	—
Asthma	83.6
Cardio-vascular	91.2
Low Birth Weights	32.5
Socioeconomic Factor Indicators	—
Education	65.7
Housing	67.3
Linguistic	—
Poverty	92.0

Unemployment	96.1

7.2. Healthy Places Index Scores

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

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	16.25818042
Employed	15.11612986
Median HI	26.27999487
Education	—
Bachelor's or higher	2.053124599
High school enrollment	100
Preschool enrollment	22.41755422
Transportation	—
Auto Access	55.28037983
Active commuting	49.87809573
Social	—
2-parent households	22.84101116
Voting	32.16989606
Neighborhood	—
Alcohol availability	47.44001027
Park access	81.35506224
Retail density	47.9019633
Supermarket access	25.77954575
Tree canopy	75.15719235
Housing	—
Homeownership	48.58206082

Housing habitability	45.82317464
Low-inc homeowner severe housing cost burden	96.0733992
Low-inc renter severe housing cost burden	3.977928911
Uncrowded housing	58.11625818
Health Outcomes	—
Insured adults	31.82343128
Arthritis	20.9
Asthma ER Admissions	14.2
High Blood Pressure	15.9
Cancer (excluding skin)	42.8
Asthma	14.8
Coronary Heart Disease	25.9
Chronic Obstructive Pulmonary Disease	13.3
Diagnosed Diabetes	45.6
Life Expectancy at Birth	17.3
Cognitively Disabled	29.3
Physically Disabled	36.0
Heart Attack ER Admissions	7.1
Mental Health Not Good	21.9
Chronic Kidney Disease	35.4
Obesity	18.6
Pedestrian Injuries	19.6
Physical Health Not Good	27.6
Stroke	29.9
Health Risk Behaviors	—
Binge Drinking	35.4
Current Smoker	15.5

No Leisure Time for Physical Activity	26.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	45.9
Elderly	76.6
English Speaking	71.7
Foreign-born	39.2
Outdoor Workers	13.6
Climate Change Adaptive Capacity	—
Impervious Surface Cover	37.8
Traffic Density	37.2
Traffic Access	0.0
Other Indices	—
Hardship	72.3
Other Decision Support	—
2016 Voting	23.6

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	79.0
Healthy Places Index Score for Project Location (b)	19.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

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

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Construction phases updated to match project.
Construction: Off-Road Equipment	Equipment list updated to match PD.

APPENDIX A2

Prioritization Calculator
ECORP Consulting, Inc. 2023

Prioritization Calculator

Applicability	Use to provide a Prioritization score based on the emission potency method. Entries required in yellow areas, output in gray areas.
Author or updater	Rosey Worden *Last Update* May 8, 2023
Facility:	Well 29 Project
ID#:	CEQA
Project #:	2023-051.01
Unit and Process#	Construction

Operating Hours hr/yr	968.00				
Receptor Proximity and Proximity Factors	**Cancer Score**	**Chronic Score**	**Acute Score**	**Max Score**	Receptor proximity is in meters. Priortization scores are calculated by multiplying the total scores summed below by the proximity factors. Record the Max score for your receptor distance. If the substance list for the unit is longer than the number of rows here or if there are multiple processes use additional worksheets and sum the totals of the Max Scores.
0< R<100 1.000	1.68E-02	2.25E-04	0.00E+00	1.68E-02	
100≤R<250 0.250	4.20E-03	5.63E-05	0.00E+00	4.20E-03	
250≤R<500 0.040	6.72E-04	9.02E-06	0.00E+00	6.72E-04	
500≤R<1000 0.011	1.85E-04	2.48E-06	0.00E+00	1.85E-04	
1000≤R<1500 0.003	5.04E-05	6.76E-07	0.00E+00	5.04E-05	
1500≤R<2000 0.002	3.36E-05	4.51E-07	0.00E+00	3.36E-05	
2000<R 0.001	1.68E-05	2.25E-07	0.00E+00	1.68E-05	

Construction

Enter the unit's CAS# of the substances emitted and their amounts.

Prioritzation score for each substance generated below. Totals on last row.

Substance	**CAS#**	**MW Correction**	**Annual Emissions (lbs/yr)**	**Maximum Hourly (lbs/hr)**	**Corrected Annual Emissions**	**Corrected Maximum Hourly**	**Average Hourly (lbs/hr)**
Diesel engine exhaust, particulate matter (Diesel PM)	**9901**	**1.0000**	0.007272146	0.040873189	7.27E-03	4.09E-02	7.51E-06
Carbon Monoxide [Criteria Pollutant]	**42101**	**1.0000**	0.226714023	1.242268617	2.27E-01	1.24E+00	2.34E-04
Oxides of Nitrogen	**42603**	**1.0000**	0.202284234	1.10840676	2.02E-01	1.11E+00	2.09E-04
Reactive Organic Gas	**16113**	**1.0000**	0.033652043	0.184394754	3.37E-02	1.84E-01	3.48E-05
Oxides of sulfur	**42401**	**1.0000**	0.000588624	0.003225334	5.89E-04	3.23E-03	6.08E-07
Particulate Matter	**11101**	**1.0000**	0.009194907	0.050383054	9.19E-03	5.04E-02	9.50E-06
Particulate Matter 2.5 Microns or less	**88101**	**1.0000**	0.007272146	0.039847377	7.27E-03	3.98E-02	7.51E-06

APPENDIX B

Biological Resources Assessment

ECORP Consulting, Inc. 2023

Biological Resources Evaluation
for the
Manteca Well 29 Project

San Joaquin County, California

Prepared For:

HydroScience Engineers

Prepared By:

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS
2525 Warren Drive
Rocklin, California 95677

May 1, 2023

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LIST OF ATTACHMENTS

Attachment A – Species Database Search Lists

LIST OF ACRONYMS AND ABBREVIATIONS

Term	Description
BCC	Birds of conservation concern
CDFW	California Department of Fish and Wildlife
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
ESA	Endangered Species Act
Project	Manteca Well 29 Project
SSC	Species of special concern
USFWS	U.S. Fish and Wildlife Service

1.0 INTRODUCTION

At the request of HydroScience Engineering, ECORP Consulting, Inc. conducted a biological resources evaluation for the proposed Manteca Well 29 Project (Project) located in the City of Manteca, San Joaquin County, California. The purpose of the evaluation is to collect desktop-level review information on the biological resources present within the Project Area and to determine any potential biological constraints to Project activities.

1.1 Project Location

The Project Area is located within Yosemite Park on El Portal Avenue in the City of Manteca, California. The approximately 1.79-acre Survey Area for the Project corresponds to a portion of Section 5, Township 2 South, and Range 7 East (Mount Diablo Base and Meridian) of the "Manteca, California" 7.5-minute quadrangle. The approximate center of the Project Area is located at 37.792678 latitude and -121.231737 longitude.

1.2 Purpose

The purpose of this biological resources evaluation is to assess the potential for occurrence of special-status plant and animal species or their habitat in the Project Area. This evaluation does not include site visits or determinate field surveys conducted according to agency-promulgated protocols.

For the purposes of this evaluation, special-status species are defined as plants or animals that:

- are listed, proposed for listing, or candidates for future listing as threatened or endangered under the federal Endangered Species Act (ESA);
- are listed or candidates for future listing as threatened or endangered under the California ESA;
- meet the definitions of endangered or rare under Section 15380 of the California Environmental Quality Act Guidelines;
- are identified as a species of special concern (SSC) by the California Department of Fish and Wildlife (CDFW);
- are birds identified as birds of conservation concern (BCC) by the U.S. Fish and Wildlife Service (USFWS);
- are plants considered by the California Native Plant Society (CNPS) to be "rare, threatened, or endangered in California and elsewhere" or "rare, threatened, or endangered in California but more common elsewhere" (California Rare Plant Ranks 1 and 2);
- are plants listed as rare under the California Native Plant Protection Act (California Fish and Game Code, Section 1900 et seq.); or
- are fully protected in California in accordance with the California Fish and Game Code, Sections 3511 (birds), 4700 (mammals), 5050 (amphibians and reptiles), and 5515 (fishes).

Only species that fall into one of the above-listed groups were considered for this evaluation.

2.0 METHODS

2.1 Literature Review

The following resources were reviewed to determine the special-status species that could have the potential to occur onsite:

- California Natural Diversity Database (CNDDB) data for the "Manteca, California" 7.5-minute quadrangle and the surrounding eight quadrangles.
- The CNPS species list for the "Manteca California" 7.5-minute quadrangle and the surrounding eight quadrangles.
- The USFWS Information for Planning and Consultation species list for the Manteca Well 29 Project Area.
- The National Marine Fisheries Service species list for the "Manteca, California" 7.5-minute quadrangle.

2.2 Desktop Review

A desktop review of the Project Area was conducted by reviewing aerial photography and Google Earth street images. The images were reviewed for special-status species habitat elements such as trees, shrubs, aquatic features, potential elderberry shrubs, and landscaping.

3.0 RESULTS

3.1 Project Setting

The Project Area consists of a suburban park that is regularly mowed and maintained. Low grass covers the majority of the Project Area with landscape trees and shrubs around the perimeter. A preexisting well building is located within the Project Area.

3.2 Evaluation of Special-Status Species

Table 1 lists all special-status plant and animal species identified from the database queries and literature review. Included in this table are the listing status for each species, a brief habitat description, approximate flowering period for plants and survey period for animals, and a determination on the potential to occur onsite.

The potential to occur onsite was evaluated based on the following criteria:

- **Present** - Species was observed during the site visit or is known to occur within the Survey Area based on documented occurrences within the CNDDB or other literature.

- **Potential to Occur** - Habitat (including soils and elevation requirements) for the species occurs within the Survey Area.
- **Low Potential to Occur** - Marginal or limited amounts of habitat occur and the species is not known to occur within the vicinity of the Survey Area based on CNDDB records and other available documentation.
- **Absent** - No suitable habitat (including soils and elevation requirements) and the species is not known to occur within the vicinity of the Survey Area based on CNDDB records and other documentation.

Table 1. Special-Status Species Evaluation

Common Name (Scientific Name)	Status			Habitat Description	Potential To Occur Onsite
	FESA	CESA/ NPPA	Other		
Plants					
Alkali milk–vetch *(Astragalus tener* var. *tener)*	--	--	1B.2	Alkaline soils in playas, valley and foothill grasslands, adobe clay, and vernal pools. Elevation: 5'–195' Bloom Period: March–June	Absent. No suitable habitat within the Project Area.
Heartscale *(Atriplex cordulata* var. *cordulata)*	--	--	1B.2	Alkaline or saline valley and foothill grasslands, meadows and seeps, and chenopod scrub communities. Elevation: 0'–1,835' Bloom Period: April–October	Absent. No suitable habitat within the Project Area.
Lesser saltscale *(Atriplex minuscula)*	--	--	1B.1	Alkaline, sandy soils in chenopod scrub, playas, and valley and foothill grassland. Elevation: 50'–655' Bloom Period: May–October	Absent. No suitable habitat within the Project Area.
Big tarplant *(Blepharizonia plumosa* ssp. *plumosa)*	--	--	1B.1	Valley and foothill grassland. Elevation: 100'–1,655' Bloom Period: July–October	Absent. No suitable habitat within the Project Area.
Watershield *(Brasenia schreberi)*	--	--	2B.3	Freshwater marshes and swamps. Elevation: 100'–7,220' Bloom Period: June–September	Absent. No suitable habitat within the Project Area.

Table 1. Special-Status Species Evaluation

Common Name (Scientific Name)	Status			Habitat Description	Potential To Occur Onsite
	FESA	CESA/ NPPA	Other		
Palmate–bracted bird's–beak *(Chloropyron palmatum)*	FE	CE	1B.1	Alkaline areas in chenopod scrub and valley and foothill grassland. Elevation: 15'–510' Bloom Period: May–October	Absent. No suitable habitat within the Project Area.
Recurved larkspur *(Delphinium recurvatum)*	--	--	1B.2	Chenopod scrub, cismontane woodland, and valley and foothill grasslands. Elevation: 10'–2,590' Bloom Period: March–June	Absent. No suitable habitat within the Project Area.
Recurved larkspur *(Delphinium recurvatum)*	--	--	1B.2	Chenopod scrub, cismontane woodland, and valley and foothill grasslands. Elevation: 10'–2,590' Bloom Period: March–June	Absent. No suitable habitat within the Project Area.
Delta button–celery *(Eryngium racemosum)*	--	CE	1B.1	Vernally mesic clay depressions in riparian scrub communities. Elevation: 10'–100' Bloom Period: June–October	Absent. No suitable habitat within the Project Area.
San Joaquin spearscale (*Extriplex joaquinana*)	--	--	1B.2	Alkaline soils in chenopod scrub, meadows seeps, playas, and valley and foothill grassland. Elevation: 5'–2,740' Bloom Period: April–October	Absent. No suitable habitat within the Project Area.
Woolly rose–mallow *(Hibiscus lasiocarpos* var. *occidentalis)*	--	--	1B.2	Marshes and freshwater swamps. Often in riprap on sides of levees. Elevation: 0'–395' Bloom Period: June–September	Absent. No suitable habitat within the Project Area.
Alkali–sink goldfields (*Lasthenia chrysantha*)	--	--	1B.1	Alkaline vernal pools. Elevation: 0'–655' Bloom Period: February–April	Absent. No suitable habitat within the Project Area.

Table 1. Special-Status Species Evaluation

Common Name (Scientific Name)	Status			Habitat Description	Potential To Occur Onsite
	FESA	CESA/ NPPA	Other		
Delta tule pea (*Lathyrus jepsonii* var. *jepsonii)*	--	--	1B.2	Freshwater and brackish marshes and swamps. Elevation: 0'–15' Bloom Period: May–July	Absent. No suitable habitat within the Project Area.
California alkali grass (*Puccinellia simplex*)	--	--	1B.2	Alkaline, vernally mesic areas and sinks, flats and lake margins in chenopod scrub, meadows and seeps, valley and foothill grassland, and vernal pools. Elevation: 5'–3,050' Bloom Period: March–May	Absent. No suitable habitat within the Project Area.
Sanford's arrowhead *(Sagittaria sanfordii)*	--	--	1B.2	Shallow marshes and freshwater swamps. Elevation: 0'–2,135' Bloom Period: May–October	Absent. No suitable habitat within the Project Area.
Suisun Marsh aster (*Symphyotrichum lentum*)	--	--	1B.2	Brackish and freshwater marshes and swamps. Elevation: 0'–10' Bloom Period: May–November	Absent. No suitable habitat within the Project Area.
Wright's trichocoronis *(Trichocoronis wrightii* var. *wrightii)*	--	--	2B.1	Alkaline soils in meadows and seeps, marshes and swamps, riparian forest, and vernal pools. Elevation: 15'–1,425' Bloom Period: May–September	Absent. No suitable habitat within the Project Area.
Saline clover *(Trifolium hydrophilum)*	--	--	1B.2	Marshes and swamps, mesic and alkaline areas in valley and foothill grassland, and vernal pools. Elevation: 0'–985' Bloom Period: April–June	Absent. No suitable habitat within the Project Area.
Caper–fruited tropidocarpum *(Tropidocarpum capparideum)*	--	--	1B.1	Alkaline hills in valley and foothill grassland. Elevation: 5'–1,495' Bloom Period: March–April	Absent. No suitable habitat within the Project Area.

Table 1. Special-Status Species Evaluation					
	Status				
Common Name (Scientific Name)	FESA	CESA/ NPPA	Other	Habitat Description	Potential To Occur Onsite
Greene's tuctoria *(Tuctoria greenei)*	FE	CR	1B.1	Vernal pools. Elevation: 100'–3,510' Bloom Period: May–July	Absent. No suitable habitat within the Project Area.
Invertebrates					
Conservancy fairy shrimp (*Branchinecta conservatio)*	FE	--	--	Vernal pools/wetlands. Survey Period: November-April when surface water is present.	Absent. No suitable habitat within the Project Area.
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT	--	--	Vernal pools/wetlands. Survey Period: November–April when surface water is present.	Absent. No suitable habitat within the Project Area.
Vernal pool tadpole shrimp (*Lepidurus packardi*)	FE	--	--	Vernal pools/wetlands. Survey Period: November-April when surface water is present.	Absent. No suitable habitat within the Project Area.
Crotch bumble bee *(Bombus crotchii)*	--	CC	--	Primarily nests underground in open grassland and scrub habitats from the California coast east to the Sierra Cascade and south to Mexico. Survey Period: March-September	Absent. The Project Area is a suburban park subject to frequent mowing and maintenance activities; no suitable habitat onsite.
Western bumble bee *(Bombus occidentalis)*	--	CC	--	Meadows and grasslands with abundant floral resources. Primarily nests underground. Largely restricted to high elevation sites in the Sierra Nevada, although rarely detected on the California coast. Survey Period: April-November	Absent. The Project Area is a suburban park subject to frequent mowing and maintenance activities; no suitable habitat onsite.

Table 1. Special-Status Species Evaluation

Common Name (Scientific Name)	Status			Habitat Description	Potential To Occur Onsite
	FESA	CESA/ NPPA	Other		
Monarch butterfly (*Danaus plexippus*)	FC	--	--	Overwinters along coastal California in wind-protected groves of eucalyptus, Monterey pine and cypress with nearby nectar and water sources; disperses in spring throughout California. Adults breed and lay eggs during the spring and summer, feeding on a variety of nectar sources; eggs are laid exclusively on milkweed plants.	Absent. The Project Area is a maintained park with mowed grass and scattered trees; based on the desktop review it does not contain milkweed host plants or nectar sources.
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	FT	--	--	Found exclusively on its host plant, the elderberry shrub, in riparian and oak woodland/ oak savannah habitats of California's Central Valley from Shasta to Madera counties.	Absent. No elderberry shrubs present within the Project Area based on desktop review.
Fish					
Green sturgeon (*Acipenser medirostris*)	FT	--	CDFW: SSC	Anadromous; undammed cold-water rivers having relatively deep pools with large substrates. Survey Period: N/A	Absent. No aquatic habitat within the Project Area.
Steelhead (CA Central Valley DPS) (*Oncorhynchus mykiss irideus*)	FT	-	-	Fast-flowing, well-oxygenated rivers and streams below dams in the Sacramento and San Joaquin River systems. Survey Period: N/A	Absent. No aquatic habitat within the Project Area.
Delta smelt (*Hypomesus transpacificus*)	FT	CE	-	Sacramento-San Joaquin Delta. Survey Period: N/A	Absent. No aquatic habitat within the Project Area.
Longfin smelt (*Spirinchus thaleichthys*)	FC	CT	SSC	Freshwater and coastal estuaries. Survey Period: N/A	Absent. No aquatic habitat within the Project Area.

Table 1. Special-Status Species Evaluation					
Common Name (Scientific Name)	**Status**			**Habitat Description**	**Potential To Occur Onsite**
	FESA	**CESA/ NPPA**	**Other**		
Hardhead (*Mylopharodon conocephalus*)	-	-	SSC	Relatively undisturbed streams at low to mid elevations in the Sacramento-San Joaquin and Russian River drainages. In the San Joaquin River, scattered populations found in tributary streams, but only rarely in the valley reaches of the San Joaquin River. Survey Period: N/A	Absent. No aquatic habitat within the Project Area.
Amphibians					
California tiger salamander (Central California Distinct Population Segment) (*Ambystoma californiense*)	FT	CT	CDFW WL	Breeds in vernal pools and seasonal wetlands in grassland or oak woodland habitats; adults are terrestrial using underground refuges such as ground squirrel or gopher burrows. Central Valley and Inner Coast Range. Survey Period: Winter-Spring.	Absent. No suitable habitat within the Project Area.
Western spadefoot (*Spea hammondii*)	--	--	SSC	California endemic species of vernal pools, swales, and seasonal wetlands in grassland, scrub and woodland habitats throughout the Central Valley and South Coast Ranges. Prefers open areas with sandy or gravelly soils. Survey Period: Winter-Spring.	Absent. No suitable habitat within the Project Area.

Table 1. Special-Status Species Evaluation

Common Name (Scientific Name)	Status			Habitat Description	Potential To Occur Onsite
	FESA	CESA/ NPPA	Other		
Reptiles					
Northern California legless lizard (*Anniella pulchra*)	--	--	SSC	The most widespread of California's *Anniella* species. Occurs in sandy or loose soils under sparse vegetation from Antioch south coastally to Ventura. Bush lupine is often an indicator plant, and two melanistic populations are known. Survey Period: Generally spring, but depends on location and conditions	Absent. No suitable habitat within the Project Area.
Giant garter snake (*Thamnophis gigas*)	FT	CT	--	Freshwater ditches, sloughs, and marshes in the Central Valley. Almost extirpated from the southern parts of its range. Survey Period: April-October	Absent. No suitable habitat within the Project Area.
Birds					
White-tailed kite (*Elanus leucurus*)	--	--	CFP	Nesting occurs within trees in low elevation grassland, agricultural, wetland, oak woodland, riparian, savannah, and urban habitats. Nesting: March-August	Low Potential. Trees within Project Area provide marginally suitable nesting habitat.
Swainson's hawk (*Buteo swainsoni*)	--	CT	--	Nesting occurs in trees in agricultural, riparian, oak woodland, scrub, and urban landscapes. Forages over grassland, agricultural lands, particularly during disking/harvesting, irrigated pastures. Nesting: March-August	Absent. No suitable habitat within the Project Area.

Table 1. Special-Status Species Evaluation

Common Name (Scientific Name)	Status			Habitat Description	Potential To Occur Onsite
	FESA	CESA/ NPPA	Other		
Yellow-billed cuckoo (*Coccyzus americanus*)	FT	CE	--	Breeding habitat is generally open woodland with clearings and low, dense, scrubby vegetation associated with watercourses, and includes desert riparian woodlands with willow, Fremont's cottonwood, alder, walnut, box-elder, and dense mesquite. Nests are generally found in deciduous hardwoods with thick bushes, vines, or hedgerows providing dense foliage within 10 meters (33 feet) of ground; prefer riparian patches of at least 81 hectares (200 acres). Winters in South America. Nesting: June 15-August 15	Absent. No suitable habitat within the Project Area.
Burrowing owl *(Athene cunicularia)*	--	--	BCC, SSC	Nests in burrows or burrow surrogates in open, treeless, areas within grassland, steppe, and desert biomes. Often with other burrowing mammals (e.g., prairie dogs, California ground squirrels). May also use human-made habitat such as agricultural fields, golf courses, cemeteries, roadside, airports, vacant urban lots, and fairgrounds. Nesting: February-August	Absent. No suitable habitat within the Project Area.
Nuttall's woodpecker *(Dryobates nuttallii)*	--	--	BCC	Resident from northern California south to Baja California. Nests in tree cavities in oak woodlands and riparian woodlands. Nesting: April-July	Low Potential. The trees within the Project Area may support nesting habitat for this species.

Table 1. Special-Status Species Evaluation

Common Name (Scientific Name)	Status			Habitat Description	Potential To Occur Onsite
	FESA	CESA/ NPPA	Other		
Yellow-billed magpie (*Pica nuttallii*)	--	--	BCC	Endemic to California; found in the Central Valley and coast range south of San Francisco Bay and north of Los Angeles County; nesting habitat includes oak savannah with large expanses of open ground; also found in urban parklike settings. Nesting: April-June	Potential. The trees within the Project Area may support nesting for this species.
Oak titmouse (*Baeolophus inornatus*)	--	--	BCC	Nests in tree cavities within dry oak or oak-pine woodland and riparian habitat; where oaks are absent, they nest in juniper woodland, open forests (gray, Jeffrey, Coulter, pinyon pines and Joshua tree). Nesting: March-July	Low Potential. The trees within the Project Area may support nesting for this species.
Loggerhead shrike (*Lanius ludovicianus*)	--	--	SSC	Found throughout California in open country with short vegetation, pastures, old orchards, grasslands, agricultural areas, open woodlands. Not found in heavily forested habitats. Nesting: March-July	Low Potential. Suitable nesting habitat in trees with low suitability foraging opportunities.

Table 1. Special-Status Species Evaluation

Common Name (Scientific Name)	Status			Habitat Description	Potential To Occur Onsite
	FESA	CESA/ NPPA	Other		
Least Bell's vireo (*Vireo bellii pusillus*)	FE	CE	--	In California, breeding range includes Ventura, Los Angeles, Riverside, Orange, San Diego, and San Bernardino counties, and rarely Stanislaus and Santa Clara counties. Nesting habitat includes dense, low shrubby vegetation in riparian areas, brushy fields, young second-growth woodland, scrub oak, coastal chaparral and mesquite brushland. Winters in southern Baja California Sur. Nesting: April 1-July 31	Absent. No suitable habitat within the Project Area.
Belding's savannah sparrow (*Passerculus sandwichensis beldingi*)	--	CE	BCC	Resident coastally from Point Conception south into Baja California; coastal salt marsh. Year-round resident; nests March-August	Absent. No suitable habitat within the Project Area.
Song sparrow "Modesto" (*Melospiza melodia heermanni*)	--	--	SSC	Resident in central and southwest California, including Central Valley; nests in marsh, scrub habitat. Nesting: April-June	Absent. No suitable habitat within the Project Area.

Table 1. Special-Status Species Evaluation					
	Status				
Common Name (Scientific Name)	FESA	CESA/ NPPA	Other	Habitat Description	Potential To Occur Onsite
Tricolored blackbird (*Agelaius tricolor*)	--	CT	BCC, SSC	Breeds locally west of Cascade-Sierra Nevada and southeastern deserts from Humboldt and Shasta counties south to San Bernardino, Riverside and San Diego counties. Central California, Sierra Nevada foothills and Central Valley, Siskiyou, Modoc and Lassen counties. Nests colonially in freshwater marsh, blackberry bramble, milk thistle, triticale fields, weedy (mustard, mallow) fields, giant cane, safflower, stinging nettles, tamarisk, riparian scrublands and forests, fiddleneck and fava bean fields. Nesting: March-August	Absent. No suitable habitat within the Project Area.
Yellow-headed blackbird (*Xanthocephalus xanthocephalus*)	--	--	BCC, SSC	In California, breeds in the Great Basin region, along Colorado River south to Baja California, Salton Sea, Kern, Ventura, Riverside, San Diego and possibly Orange, Lake counties and locally in the Central Valley. Nests are constructed over deep water in emergent vegetation of prairie wetlands, quaking aspen parklands, mountain meadows, forest edges, large lakes. Nesting: April-July	Absent. No suitable habitat within the Project Area.
Bullock's oriole (*Icterus bullockii*)	--	--	BCC	Breeding habitat includes riparian and oak woodlands. Nesting: March-July	Potential. The trees onsite provide suitable nesting habitat.
Saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*)	--	--	BCC, SSC	Breeds in salt marshes of San Francisco Bay; winters San Francisco south along coast to San Diego County. Nesting: March-July	Absent. No suitable habitat within the Project Area.

Table 1. Special-Status Species Evaluation					
Common Name (Scientific Name)	**Status**			**Habitat Description**	**Potential To Occur Onsite**
	FESA	**CESA/ NPPA**	**Other**		
Mammals					
Pallid bat *(Antrozous pallidus)*	-	-	SSC	Crevices in rocky outcrops and cliffs, caves, mines, trees (e.g., basal hollows of redwoods, cavities of oaks, exfoliating pine and oak bark, deciduous trees in riparian areas, and fruit trees in orchards). Also roosts in various human structures such as bridges, barns, porches, bat boxes, and human occupied as well as vacant buildings Survey Period: April-September	Low Potential. Trees and buildings within the Project Area provide marginally suitable habitat.
Riparian brush rabbit *(Sylvilagus bachmani riparius)*	FE	CE	-	Riparian brush rabbits inhabit dense, brushy areas of valley riparian forests marked by extensive thickets of California wild rose (*Rosa californica*), California blackberries (*Rubus ursinus*), and willows (*Salix* spp.). Thriving mats of low-growing vines and shrubs serve as ideal living sites where they build tunnels under and through the vegetation. Survey Period: Any season	Absent. No suitable habitat within the Project Area.

Table 1. Special-Status Species Evaluation

Common Name (Scientific Name)	Status			Habitat Description	Potential To Occur Onsite
	FESA	CESA/ NPPA	Other		
Riparian woodrat *(Neotoma fuscipes riparia)*	FE	-	SSC	The riparian woodrat occurs in riparian woodland with an overstory canopy of trees and moderate to dense shrub understory, with abundant dead branches and downed woody material (Williams 1993). Currently, a single population is known to exist along the Stanislaus River in and immediately adjacent to Caswell Memorial State Park Survey Period: Any season	Absent. No suitable habitat within the Project Area.

Status Codes:

FESA	Federal Endangered Species Act
CESA	California Endangered Species Act
FE	FESA listed, Endangered
FT	FESA listed, Threatened
FC	Candidate for FESA listing as Threatened or Endangered
BCC	USFWS Bird of Conservation Concern (USFWS 2021)
CE	CESA- or NPPA listed, Endangered
CT	CESA- or NPPA-listed, Threatened
CR	CESA- or NPPA-listed, Rare
CC	Candidate for CESA listing as Endangered or Threatened
CFP	California Fish and Game Code Fully Protected Species (§ 3511-birds, § 4700-mammals, §5050-reptiles/amphibians)
SSC	CDFW Species of Special Concern
CDFW WL	CDFW Watch List
1B	CRPR/Rare or Endangered in California and elsewhere
2B	CRPR/Plants rare, threatened, or endangered in California but more common elsewhere
0.1	Threat Rank/Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
0.2	Threat Rank/Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
0.3	Threat Rank/Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

4.0 RECOMMENDATIONS

4.1 Nesting Birds

Within 14 days prior to construction activities and vegetation removal, a qualified biologist will survey the Project Area and 500 feet adjacent for nesting birds. If an active nest (i.e. containing eggs or young) is observed, then the qualified biologist will install a species-specific no-disturbance buffer around the active

nest. No Project activities will occur within the no-disturbance buffer until the qualified biologist has determined that the nest is no longer active. If there is a lapse in construction activities of 15 days or more, then an additional nesting bird survey shall be conducted prior to reinitiating construction activities.

4.2 Day Roosting Bats

The trees and building within the Project Area may provide marginally suitable bat day roosting habitat for species such as the pallid bat. A bat habitat assessment shall be conducted by a qualified biologist prior to tree removal and construction activities on the existing building. If day roosting bat habitat occurs in trees that will be removed, or within the existing building, then a qualified biologist will conduct an evening emergence survey when nighttime low temperatures are above 45 degrees Fahrenheit.

If bats are observed exiting day roosting habitat during the evening emergence survey, then the habitat will be removed/affected outside of the maternity and hibernation season when nighttime low temperatures are above 45 degrees (typically May 1 through April 15th and September 1 through October 15th). Occupied trees will be removed using the two-step removal process under direction from a qualified biologist on both days. On Day 1, limbs that do not have day-roosting bat habitat will be removed. On Day 2 (next consecutive day) the remainder of the tree will be removed.

If occupied bat day roosting habitat within the existing building will be affected by construction activities, the habitat can be excluded by a qualified biologist outside of the maternity and hibernation season when nighttime low temperatures are above 45 degrees (typically May 1 through April 15th and September 1 through October 15th).

4.3 Manteca Tree Ordinance

City of Manteca, California Municipal Code Title 12 Streets, Sidewalks and Public Places Chapter 12.08 Trees and Shrubs Subsection 12.08.070 Tree trimming and removal "No person shall cut, prune, remove, injure or interfere with any tree, shrub, or plant upon or in any street tree area or other public place in the city without prior permission and approval therefor from the director. The director is authorized to grant such permission at his or her discretion and where necessary."

ECORP consulting, Inc. recommends that the Project adheres to the local municipal tree removal ordinance.

ATTACHMENT A

Species Database Search Lists

Selected Elements by Element Code

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Manteca (3712172) OR Avena (3712171) OR Peters (3712181) OR Lathrop (3712173) OR Stockton West (3712183) OR Stockton East (3712182) OR Salida (3712161) OR Vernalis (3712163) OR Ripon (3712162))

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
AAAAA01181	***Ambystoma californiense pop. 1*** California tiger salamander - central California DPS	Threatened	Threatened	G2G3T3	S3	WL
AAABF02020	***Spea hammondii*** western spadefoot	None	None	G2G3	S3S4	SSC
ABNJB05035	***Branta hutchinsii leucopareia*** cackling (=Aleutian Canada) goose	Delisted	None	G5T3	S3	WL
ABNKC06010	***Elanus leucurus*** white-tailed kite	None	None	G5	S3S4	FP
ABNKC19070	***Buteo swainsoni*** Swainson's hawk	None	Threatened	G5	S4	
ABNKD06030	***Falco columbarius*** merlin	None	None	G5	S3S4	WL
ABNRB02022	***Coccyzus americanus occidentalis*** western yellow-billed cuckoo	Threatened	Endangered	G5T2T3	S1	
ABNSB10010	***Athene cunicularia*** burrowing owl	None	None	G4	S3	SSC
ABPAT02011	***Eremophila alpestris actia*** California horned lark	None	None	G5T4Q	S4	WL
ABPBR01030	***Lanius ludovicianus*** loggerhead shrike	None	None	G4	S4	SSC
ABPBW01114	***Vireo bellii pusillus*** least Bell's vireo	Endangered	Endangered	G5T2	S3	
ABPBXA3013	***Melospiza melodia pop. 1*** song sparrow ("Modesto" population)	None	None	G5T3?Q	S3?	SSC
ABPBXB0020	***Agelaius tricolor*** tricolored blackbird	None	Threatened	G1G2	S2	SSC
ABPBXB3010	***Xanthocephalus xanthocephalus*** yellow-headed blackbird	None	None	G5	S3	SSC
AFCAA01031	***Acipenser medirostris pop. 1*** green sturgeon - southern DPS	Threatened	None	G2T1	S1	
AFCHA0209K	***Oncorhynchus mykiss irideus pop. 11*** steelhead - Central Valley DPS	Threatened	None	G5T2Q	S2	
AFCHB01040	***Hypomesus transpacificus*** Delta smelt	Threatened	Endangered	G1	S1	
AFCHB03010	***Spirinchus thaleichthys*** longfin smelt	Candidate	Threatened	G5	S1	
AFCJB25010	***Mylopharodon conocephalus*** hardhead	None	None	G3	S3	SSC

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
AMACC10010	***Antrozous pallidus*** pallid bat	None	None	G4	S3	SSC
AMAEB01021	***Sylvilagus bachmani riparius*** riparian brush rabbit	Endangered	Endangered	G5T1	S1	
AMAFF08081	***Neotoma fuscipes riparia*** riparian (=San Joaquin Valley) woodrat	Endangered	None	G5T1Q	S1	SSC
ARACC01020	***Anniella pulchra*** Northern California legless lizard	None	None	G3	S2S3	SSC
ARADB36150	***Thamnophis gigas*** giant gartersnake	Threatened	Threatened	G2	S2	
CTT61410CA	***Great Valley Cottonwood Riparian Forest*** Great Valley Cottonwood Riparian Forest	None	None	G2	S2.1	
CTT61420CA	***Great Valley Mixed Riparian Forest*** Great Valley Mixed Riparian Forest	None	None	G2	S2.2	
CTT61430CA	***Great Valley Valley Oak Riparian Forest*** Great Valley Valley Oak Riparian Forest	None	None	G1	S1.1	
CTT63440CA	***Elderberry Savanna*** Elderberry Savanna	None	None	G2	S2.1	
ICBRA03010	***Branchinecta conservatio*** Conservancy fairy shrimp	Endangered	None	G2	S2	
ICBRA03030	***Branchinecta lynchi*** vernal pool fairy shrimp	Threatened	None	G3	S3	
ICBRA03150	***Branchinecta mesovallensis*** midvalley fairy shrimp	None	None	G2	S2S3	
ICBRA06010	***Linderiella occidentalis*** California linderiella	None	None	G2G3	S2S3	
ICBRA10010	***Lepidurus packardi*** vernal pool tadpole shrimp	Endangered	None	G4	S3	
IICOL48011	***Desmocerus californicus dimorphus*** valley elderberry longhorn beetle	Threatened	None	G3T2T3	S3	
IICOL49010	***Anthicus sacramento*** Sacramento anthicid beetle	None	None	G4	S4	
IICOL4C020	***Lytta moesta*** moestan blister beetle	None	None	G2	S2	
IIDIP05010	***Rhaphiomidas trochilus*** San Joaquin Valley giant flower-loving fly	None	None	G1	S1	
IIHYM24252	***Bombus occidentalis*** western bumble bee	None	Candidate Endangered	G3	S1	
IIHYM24260	***Bombus pensylvanicus*** American bumble bee	None	None	G3G4	S2	
IIHYM24380	***Bombus caliginosus*** obscure bumble bee	None	None	G2G3	S1S2	

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
IIHYM24480	***Bombus crotchii*** Crotch bumble bee	None	Candidate Endangered	G2	S2	
IMBIV19010	***Gonidea angulata*** western ridged mussel	None	None	G3	S2	
PDAPI0Z0S0	***Eryngium racemosum*** Delta button-celery	None	Endangered	G1	S1	1B.1
PDAST1C011	***Blepharizonia plumosa*** big tarplant	None	None	G1G2	S1S2	1B.1
PDAST2E0U0	***Cirsium crassicaule*** slough thistle	None	None	G1	S1	1B.1
PDAST5L030	***Lasthenia chrysantha*** alkali-sink goldfields	None	None	G2	S2	1B.1
PDAST9F031	***Trichocoronis wrightii var. wrightii*** Wright's trichocoronis	None	None	G4T3	S1	2B.1
PDASTE8470	***Symphyotrichum lentum*** Suisun Marsh aster	None	None	G2	S2	1B.2
PDBRA2R010	***Tropidocarpum capparideum*** caper-fruited tropidocarpum	None	None	G1	S1	1B.1
PDCAB01010	***Brasenia schreberi*** watershield	None	None	G5	S3	2B.3
PDCHE040B0	***Atriplex cordulata var. cordulata*** heartscale	None	None	G3T2	S2	1B.2
PDCHE041F3	***Extriplex joaquinana*** San Joaquin spearscale	None	None	G2	S2	1B.2
PDCHE042M0	***Atriplex minuscula*** lesser saltscale	None	None	G2	S2	1B.1
PDFAB0F8R1	***Astragalus tener var. tener*** alkali milk-vetch	None	None	G2T1	S1	1B.2
PDFAB250D2	***Lathyrus jepsonii var. jepsonii*** Delta tule pea	None	None	G5T2	S2	1B.2
PDFAB400R5	***Trifolium hydrophilum*** saline clover	None	None	G2	S2	1B.2
PDMAL0H0R3	***Hibiscus lasiocarpos var. occidentalis*** woolly rose-mallow	None	None	G5T3	S3	1B.2
PDRAN0B1J0	***Delphinium recurvatum*** recurved larkspur	None	None	G2?	S2?	1B.2
PDSCR0J0J0	***Chloropyron palmatum*** palmate-bracted bird's-beak	Endangered	Endangered	G1	S1	1B.1
PMALI040Q0	***Sagittaria sanfordii*** Sanford's arrowhead	None	None	G3	S3	1B.2
PMPOA53110	***Puccinellia simplex*** California alkali grass	None	None	G2	S2	1B.2

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
PMPOA6N010	***Tuctoria greenei*** Greene's tuctoria	Endangered	Rare	G1	S1	1B.1

Record Count: 62

Search Results

24 matches found. Click on scientific name for details

Search Criteria: 9-Quad include [**3712172:3712171:3712181:3712173:3712183:3712182:3712161:3712163:3712162**]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	CA ENDEMIC	DATE ADDED	PHOTO
Astragalus tener var. *tener*	alkali milk-vetch	Fabaceae	annual herb	Mar-Jun	None	None	G2T1	S1	1B.2	Yes	1994-01-01	No Photo Available
Atriplex cordulata var. *cordulata*	heartscale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G3T2	S2	1B.2	Yes	1988-01-01	 © 1994 Robert E. Preston, Ph.D.
Atriplex coronata var. *coronata*	crownscale	Chenopodiaceae	annual herb	Mar-Oct	None	None	G4T3	S3	4.2	Yes	1994-01-01	 © 1994 Robert E. Preston, Ph.D.
Atriplex minuscula	lesser saltscale	Chenopodiaceae	annual herb	May-Oct	None	None	G2	S2	1B.1	Yes	1994-01-01	 © 2000 Robert E. Preston, Ph.D.
Blepharizonia plumosa	big tarplant	Asteraceae	annual herb	Jul-Oct	None	None	G1G2	S1S2	1B.1	Yes	1994-01-01	No Photo Available
Brasenia schreberi	watershield	Cabombaceae	perennial rhizomatous herb (aquatic)	Jun-Sep	None	None	G5	S3	2B.3		2010-10-27	 ©2014 Kirsten Bovee
Centromadia parryi ssp. *rudis*	Parry's rough tarplant	Asteraceae	annual herb	May-Oct	None	None	G3T3	S3	4.2	Yes	2007-05-22	No Photo Available
Chloropyron palmatum	palmate-bracted bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	May-Oct	FE	CE	G1	S1	1B.1	Yes	1974-01-01	No Photo Available

Cirsium crassicaule	slough thistle	Asteraceae	annual/perennial herb	May-Aug	None	None	G1	S1	1B.1	Yes	1974-01-01	No Photo Available
Delphinium recurvatum	recurved larkspur	Ranunculaceae	perennial herb	Mar-Jun	None	None	G2?	S2?	1B.2	Yes	1988-01-01	No Photo Available
Eryngium racemosum	Delta button-celery	Apiaceae	annual/perennial herb	(May)Jun-Oct	None	CE	G1	S1	1B.1	Yes	1974-01-01	No Photo Available
Extriplex joaquinana	San Joaquin spearscale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G2	S2	1B.2	Yes	1988-01-01	No Photo Available
Hesperevax caulescens	hogwallow starfish	Asteraceae	annual herb	Mar-Jun	None	None	G3	S3	4.2	Yes	2001-01-01	 © 2017 John Doyen
Hibiscus lasiocarpos var. *occidentalis*	woolly rose-mallow	Malvaceae	perennial rhizomatous herb (emergent)	Jun-Sep	None	None	G5T3	S3	1B.2	Yes	1974-01-01	 © 2020 Steven Perry
Lasthenia chrysantha	alkali-sink goldfields	Asteraceae	annual herb	Feb-Apr	None	None	G2	S2	1B.1	Yes	2019-09-30	 © 2009 California State University, Stanislaus
Lasthenia ferrisiae	Ferris' goldfields	Asteraceae	annual herb	Feb-May	None	None	G3	S3	4.2	Yes	2001-01-01	 © 2009 Zoya Akulova
Lathyrus jepsonii var. *jepsonii*	Delta tule pea	Fabaceae	perennial herb	May-Jul(Aug-Sep)	None	None	G5T2	S2	1B.2	Yes	1974-01-01	 © 2003 Mark Fogiel
Puccinellia simplex	California alkali grass	Poaceae	annual herb	Mar-May	None	None	G2	S2	1B.2		2015-10-15	No Photo Available
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	None	None	G3	S3	1B.2	Yes	1984-01-01	 ©2013 Debra L. Cook
Symphyotrichum lentum	Suisun Marsh aster	Asteraceae	perennial rhizomatous herb	(Apr)May-Nov	None	None	G2	S2	1B.2	Yes	1974-01-01	No Photo Available

Trichocoronis wrightii var. *wrightii*	Wright's trichocoronis	Asteraceae	annual herb	May-Sep	None	None	G4T3	S1	2B.1		1988-01-01	No Photo Available
Trifolium hydrophilum	saline clover	Fabaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.2	Yes	2001-01-01	No Photo Available
Tropidocarpum capparideum	caper-fruited tropidocarpum	Brassicaceae	annual herb	Mar-Apr	None	None	G1	S1	1B.1	Yes	1974-01-01	No Photo Available
Tuctoria greenei	Greene's tuctoria	Poaceae	annual herb	May-Jul(Sep)	FE	CR	G1	S1	1B.1	Yes	1974-01-01	 ©2008 F. Gauna

Showing 1 to 24 of 24 entries

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2023. Rare Plant Inventory (online edition, v9.5). Website https://www.rareplants.cnps.org [accessed 5 April 2023].

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.

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Location

San Joaquin County, California



Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

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Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

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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:

Amphibians

NAME	STATUS
California Tiger Salamander Ambystoma californiense There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2076	Threatened

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate
Valley Elderberry Longhorn Beetle Desmocerus californicus dimorphus Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp Branchinecta lynchi Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp Lepidurus packardi Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2246	Endangered

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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 Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

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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
Belding's Savannah Sparrow *Passerculus sandwichensis beldingi* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8	Breeds Apr 1 to Aug 15
Bullock's Oriole *Icterus bullockii* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 21 to Jul 25
California Gull *Larus californicus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 1 to Jul 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
Nuttall's Woodpecker *Picoides nuttallii* 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 *Baeolophus inornatus* 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
Tricolored Blackbird *Agelaius tricolor* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3910	Breeds Mar 15 to Aug 10

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Yellow-billed Magpie Pica nuttalli — Breeds Apr 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9726

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.

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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.



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Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);

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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.

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Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view 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.

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The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

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Quad Name **Manteca**
Quad Number **37121-G2**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) -
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat -
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office 562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

APPENDIX C

Cultural Resources Due Diligence Review,

ECORP Consulting, Inc. 2023

DRAFT

HydroScience Engineers
10569 Old Placerville Road
Sacramento, CA 95827

RE: Cultural Resources Due Diligence Review for the HydroScience-TO1 Manteca Well 29 TCP Project, San Joaquin County, California

Greetings:

At your request, ECORP Consulting, Inc. carried out a cultural resources due diligence records search and literature review for the HydroScience-TO1 Manteca Well 29 TCP Project. The Project Area consists of approximately 1.79 acres of land located in the southwestern corner of Yosemite Village Park on El Portal Avenue in the City of Manteca, San Joaquin County, California. The property is in the southwestern quarter of the northwestern quarter of Section 5, Township 2 South, Range 7 East, Mount Diablo Base and Meridian, as depicted on the 1952 (photorevised 1980, minor revision 1994) Manteca, California U.S. Geological Survey 7.5-minute topographic quadrangle map (Figure 1). It is also known as Assessor's Parcel Number (APN) 219-090-10.

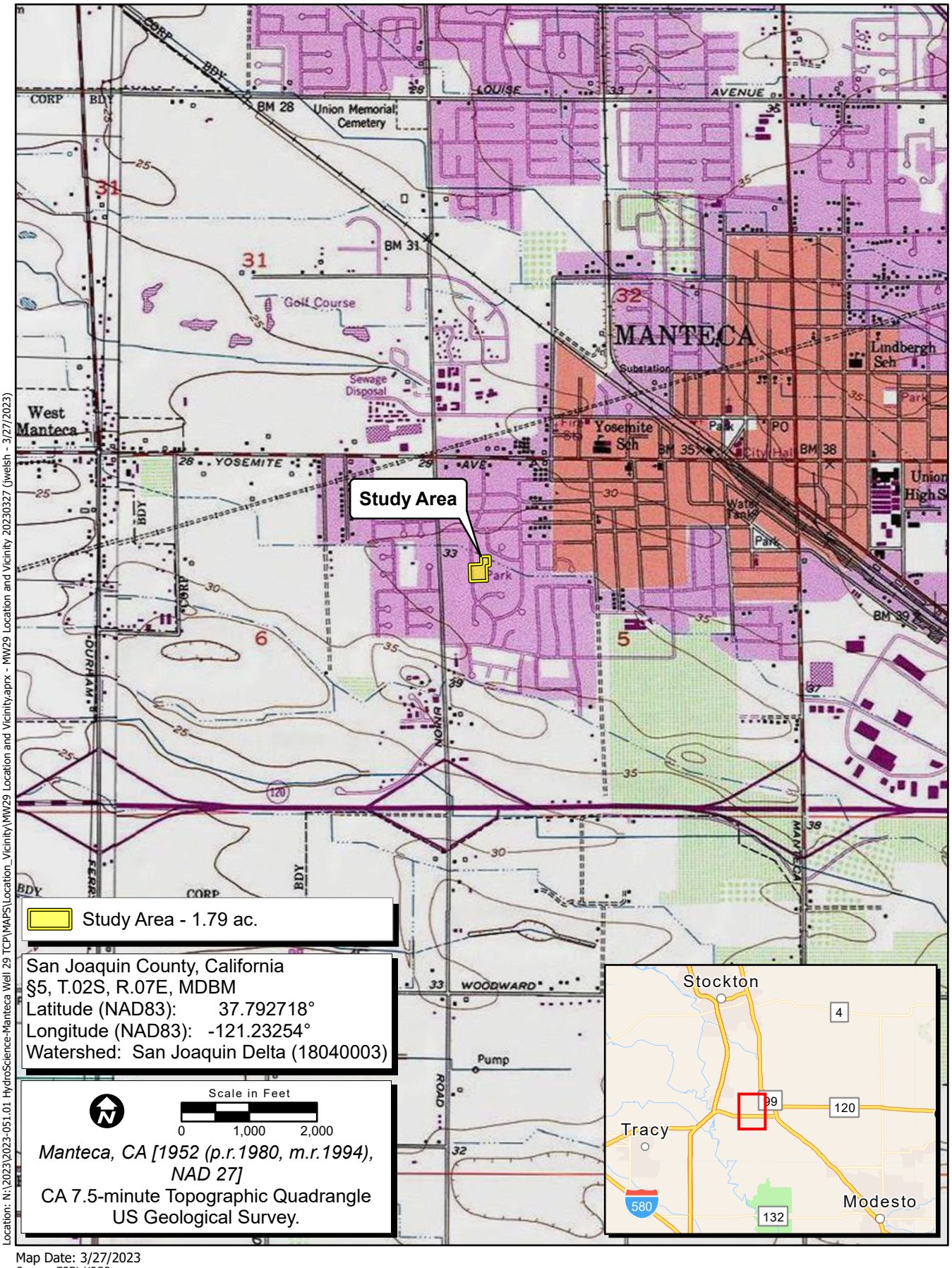
The review used reasonably accessible records search and database information and included the examination of aerial photographs and maps. This summary letter identifies potential constraints based on the reviewed information and provides an outline of steps that may be necessary to entitle the property for development. This due diligence review does not include field surveys for cultural resources, agency or tribal consultation, or evaluations of significance for any previously recorded resources. The assessment is based on existing data that was already accessible to ECORP and may not predict all potential exposures; however, it conservatively identifies the potential exposures that are reasonably applicable to the property.

RECORDS SEARCH

Qualifications

This assessment was directed by Registered Professional Archaeologist (RPA) Brian S. Marks, Ph.D., who meets the Secretary of the Interior's Professional Qualifications Standards for prehistoric and historical archaeology (36 Code of Federal Regulations Part 61). Dr. Marks is a Senior Archaeologist with more than 26 years of experience. Arik J. K. Bord, RPA conducted the records search and data gathering. Mr. Bord is a Staff Archaeologist with more than 10 years of experience in anthropological and archaeological investigations.

2525 Warren Drive ● Rocklin, CA 95677 ● Tel: (916) 782-9100 ● Fax: (916) 782-9134 ● www.ecorpconsulting.com



Location: N:\2023\2023-051.01 HydroScience-Manteca Well 29 TCP\MAPS\Location_Vicinity\MW29 Location and Vicinity.aprx - MW29 Location and Vicinity 20230327 (jwelsh - 3/27/2023)

Map Date: 3/27/2023
Sources: ESRI, USGS

Figure 1. Project Location and Vicinity

Sources Reviewed

ECORP requested a records search for the property at the Central California Information Center (CCIC) of the California Historical Resources Information System at California State University, Stanislaus on March 27, 2023 (CCIC Search #CC12490L; Appendix A). The purpose of the records search was to determine the extent of previous surveys within a 0.5-mile (800-meter) radius of the Proposed Project location, and whether previously documented pre-contact or historic archaeological sites, architectural resources, or traditional cultural properties exist within this area. CCIC staff completed and returned the records search to ECORP on March 28, 2023.

In addition to the official records and maps for archaeological sites and surveys in San Joaquin County, ECORP also reviewed the following historic references: Built Environment Resource Directory (California Office of Historic Preservation [OHP] 2020); Historic Property Data File for San Joaquin County (OHP 2012); the National Register Information System (National Park Service [NPS] 2023); Office of Historic Preservation, California Historical Landmarks (CHL; OHP 2022); CHL (OHP 1996 and updates); California Points of Historical Interest (OHP 1992 and updates); Directory of Properties in the Historical Resources Inventory (1999); Caltrans Local Bridge Survey (California Department of Transportation [Caltrans] 2019); Caltrans State Bridge Survey (Caltrans 2018); and *Historic Spots in California* (Kyle 2002). ECORP also reviewed geologic maps and soils data to assess buried site potential.

Other references examined include a RealQuest Property Search and historic General Land Office (GLO) land patent records (Bureau of Land Management [BLM] 2022). In addition, ECORP reviewed the following maps:

- 1855 BLM GLO Plat map for Township 2 South, Range 7 East;
- 1914 USGS Manteca, California topographic quadrangle map (1:31,680 scale);
- 1952 USGS Manteca, California topographic quadrangle map (1:24,000 scale);
- 1952 (photorevised 1976) USGS Manteca, California topographic quadrangle map (1:24,000 scale); and
- 1952 (photorevised 1980, minor revision 1994) USGS Manteca, California topographic quadrangle map (1:24,000 scale).

ECORP reviewed aerial photographs taken in 1957, 1968, 1982, 1993, 2005, 2017, 2018, and 2020 for any indications of property usage and built environment.

ECORP contacted the California Native American Heritage Commission (NAHC) on March 27, 2023 to request a search of the Sacred Lands File for the Project Area (Appendix B). This search determines whether the California Native American tribes within the Project Area have recorded Sacred Lands because the Sacred Lands File is populated by members of the Native American community with knowledge about the locations of tribal resources. In requesting a search of the Sacred Lands File, ECORP solicited information from the Native American community regarding Tribal Cultural Resources, but the responsibility to formally consult with the Native American community lies exclusively with the federal and

local agencies under applicable state and federal laws. The lead agencies do not delegate government-to-government authority to any private entity to conduct tribal consultation.

SEARCH RESULTS

Records Search

Seven previous cultural resource investigations were conducted within 0.5 mile of the property, covering the entire area surrounding the Project Area within the records search radius (Table 1). The previous studies were conducted between 1998 and 2017.

Table 1. Previous Cultural Studies in or within 0.5 mile of the Project Area

Report Number SJ-	Author(s)	Report Title	Year	Includes the Project Area?
4786	Windmiller, Ric and Donald Napoli	City of Manteca--General Plan Update, Background Reports: Archaeological Resources, Historical Resources, Records Search Results	2002	Yes
5309	Baloian, M., R. Baloian, and W. Nettles	Cultural Resources Investigations for the South San Joaquin Irrigation District in San Joaquin County, California	2004	No
6625	ASI Archaeology and Cultural Resource Management	Cultural Resources Survey, South County Surface Water Project, San Joaquin County, California, South San Joaquin Irrigation District	1998	No
6739	Hooks, C.	New Tower ("NT") Submission Packet FCC Form 620 Cabral Motors SC13354, 1145 w. Yosemite Avenue Manteca	2005	No
7214	Travers, A.	Cultural Resources Analysis Downtown Manteca/CN 1926 1115 West Yosemite Ave, San Joaquin County Manteca, California 95337 EBI Project No. 61096032	2009	No
7762	Supernowicz, D.	Letter Report: Records Search Results for the Downtown Manteca Project, 1115 W. Yosemite Avenue, Manteca, San Joaquin County, California	2012	No
9257	Falke, M. and K. Vallaire	Supplemental Archaeological Survey Report, State Route 120 at Union Road Interchange Project, Manteca, San Joaquin County, California; 10-SJ-120, P.M. 3.4/5.2, EA 10-0P200, ID 10-0000-0182	2017	No

One previous study includes the entire Project Area. SJ-4786 consists of a records search and historical contexts for the entirety of the area included in the City of Manteca General Plan Update (Windmiller and Napoli 2002). This study did not include a pedestrian survey of the Project Area, so one will need to be performed prior to any work being performed.

The records search also determined that four previously recorded historic-period cultural resources are located within 0.5 mile of the property (Table 2). No cultural resources have been previously recorded within the Project Area, and no pre-contact resources were documented within 0.5 mile.

Table 2. Previously Recorded Cultural Resources within 0.5 mile of the Project Area

Site Number CA-SJO-	Primary Number P-39-	Recorder and Year	Age/Period	Site Description
–	5004	San Joaquin County Superintendent of Schools, Public Schools of San Joaquin County 1852-1990 (1991)	Historic-era	Manteca Unified School District/Manteca/Yosemite School
–	5090	San Joaquin County Superintendent of Schools, Public Schools of San Joaquin County 1852-1990 (1991)	Historic-era	Elliott (Brock) School, 1110 Stonum Ln., Manteca
–	5098	San Joaquin County Superintendent of Schools, Public Schools of San Joaquin County 1852-1990 (1991)	Historic-era	Sequoia Elementary School, 710 Martha St., Manteca
–	5337	M. Walker, Cardno, Inc., for PG&E (2017)	Historic-era	Tesla-Salado-Manteca 115 kV Transmission Line

Literature Review

The OHP's Built Environment Resource Directory for San Joaquin County (dated March 3, 2020) lists two properties within 0.5 mile of the Project Area (OHP 2020): 1142 and 1155 Virginia Street. The two properties were evaluated on June 17, 2013 and November 15, 2010, respectively, and are approximately 0.2 mile north of the Project Area. Both properties were determined ineligible for the National Register by consensus through Section 106 process – not evaluated for California Register or local listing (6Y).

The National Register Information System (NPS 2022) failed to reveal any eligible or listed properties within the City of Manteca. The nearest National Register property is located approximately 10 miles north of the Project Area in the City of Stockton.

ECORP reviewed resources listed as California Historical Landmarks (OHP 1996) by the OHP (2022) on March 28, 2023. The nearest listed landmark is #668: French Camp, located at the French Camp School approximately 6.7 miles north of the Project Area in the community of French Camp.

A review of *Historic Spots in California* (Kyle 2002) mentions San Joaquin County was one of the original 27 counties in California and that more than 100 village sites have been located throughout the County in the form of mounds or midden deposits.

Historic GLO land patent records from the BLM's patent information database (BLM 2022) revealed that the southwestern quarter of the northwestern quarter of Section 5 was patented to Livingston S.

Bartholomew and William H. Lyons on March 3, 1855 under the Scrip Warrant Act of 1855 (10 Stat. 701), which issued credits for military service (scrip) that could be used to purchase federal land.

A RealQuest online property search for APN 219-090-10 revealed that the property consists of 4.9 acres of public service land. No other property history information was on record with RealQuest.

The Caltrans Bridge Local and State Inventories (Caltrans 2018, 2019) did not list any historic bridges within 0.5 mile of the Project Area.

Historic Map and Aerial Photograph Review

- The 1855 BLM GLO Plat map for Township 2 South, Range 7 East depicts the Project Area situated in the southwestern quarter of the northwestern Quarter of Section 5 in plot number 80. A road is depicted oriented north–south through the eastern half of Section 4. No other noteworthy depictions are present in the vicinity of Section 5.
- The 1914 USGS Manteca, California topographic quadrangle map (1:31,680 scale) depicts the Project Area southwest of Manteca. Yosemite Avenue is depicted with several structures on its northern and southern sides, approximately 0.3 mile north of the Project Area. The Southern Pacific Railroad runs northwest–southeast through Manteca, 0.75 mile northeast of the Project Area.
- The 1952 USGS Manteca, California topographic quadrangle map (1:24,000 scale) depicts Yosemite Avenue, which is labeled California State Route (SR) 120. Union Road runs north–south to the southwest of the Project Area. The Manteca city limits are depicted as having expanded to approximately 0.25 mile east of the Project Area.
- A review of aerial photographs from 1957 show the Project Area on the western side of a farm road that runs northwest–southeast through an agricultural field. Flooded rice fields are visible two fields west of the Project Area, with orchards west of the rice fields.
- A review of aerial photographs from 1968 show the Project Area within the southwestern corner of Yosemite Village Park. A residential neighborhood surrounds the Project Area east of Yosemite Road, with agricultural fields to the west. No structures or features are visible within the park where the Project Area is located; however, there are a few trees in the center and around the perimeter of the Project Area.
- The 1952 (photorevised 1976) USGS Manteca, California topographic quadrangle map (1:24,000 scale) depicts the City of Manteca expanding again to encompass the Project Area. Residential streets and cul-de-sacs surround the Project Area up to Union Road; however, no structures are depicted within the new neighborhood.
- Aerial photographs from 1982 show the residential neighborhood surrounding the Project Area has expanded west of Yosemite Road. The SR 120 bypass is visible south of the Project Area.
- A review of aerial photographs from 1993 show a play area or sandbox in the northern end of Yosemite Village Park, north of the Project Area. Several trees are visible on the northern side of

the park and along its northeastern and southern perimeter. The neighborhood west of Yosemite Road has expanded farther westward, and the orchards west of the Project Area have been replaced by residential sprawl and Sierra High School.

- The 1952 (photorevised 1980, minor revision 1994) USGS Manteca, California topographic quadrangle map (1:24,000 scale) depicts the neighborhood surrounding the Project Area expanding further west of Union Road. No new structures are depicted in the vicinity of the Project Area within the photorevised sections of the map. SR 120 is depicted in its current location south of the Project Area.
- Aerial photographs from 2005 show a new rectangular concrete basketball court in the center of the Project Area and a structure on the eastern side of Yosemite Village Park, east of the Project Area. Trees now line the entire perimeter of the park.
- Aerial photographs from 2017, 2018, and 2020 show the Well 29 structures and treatment tanks being constructed in their current locations within the Project Area in the southwestern corner of Yosemite Village Park.

Sacred Lands File Results

A search of the Sacred Lands File by the NAHC failed to indicate the presence of Native American cultural resources in the Project Area. A record of all correspondence is provided in Appendix B.

RESULTS AND RECOMMENDATIONS

Summary of Results

The literature and map review revealed that the property was used for agriculture prior to 1960, but was developed into a municipal park sometime between 1957 and 1968 as the city limits of Manteca expanded through the area. Further improvements were made, which began in 2017 with the installation of the well and filtration system. No cultural resources have been previously identified within the Project Area, and the only previous study within the Project Area did not include a pedestrian survey and was conducted more than 20 years ago using methods and under conditions that are now considered obsolete.

Potential for Buried Pre-Contact Archaeological Materials and Need for Tribal Involvement

In assessing potential for buried archaeological sites, ECORP reviewed reasonably available information regarding natural water and soils. The presence of natural water sources is often an indicator for the potential presence of archaeological resources because pre-contact Native American communities and post-contact European-American and Native American communities exploited natural water courses for a variety of subsistence and economic resources. The region falls under the traditionally recognized lands of the Native American tribe, Northern Valley Yokuts. The Northern Valley Yokuts' ancestral territory encompasses the Project Area. Typically, there is a greater concentration of archaeological resources

along bays and major rivers than in areas farther from a primary water source. No natural waterways appear associated with the parcel in historic maps and aerial photographs, although the San Joaquin River is located approximately 4 miles west of the Project Area.

Geological data from the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) characterize the geology of the local area in reference to archaeological history. Certain geological characteristics and formations are more likely to be of concern for archaeological materials. According to the NRCS Web Soil Survey website (NRCS 2023), only one type of soil is present in the Project Area: Delhi-Urban land complex, 0 to 2 percent slopes (143). This soil is a somewhat excessively drained, wind-modified alluvium derived from granitic rock sources. Typically, Delhi-type sand and soils indicate a higher probability of buried archaeological deposits; however, that probability is highly mitigated by the Urban land soil types present within the Project Area, in addition to past disturbances of the ground by previous agricultural endeavors and more recent development of urban sprawl throughout the area surrounding the Project Area. It is likely that archaeological remains within the Project Area, if any, would have been destroyed during the installation of Well 29 and the development of the neighborhood where the Project Area is located.

The underlying geomorphology of this area consists of sediments deposited during flood stages of major streams in areas between natural stream levees and alluvial fans, and are probably of late Pleistocene age (California Geological Survey 2023). This means that the parcel exhibits alluvial sediments deposited by ancient and recent water flow, which can mask archaeological sites. Holocene (approximately 12,000 years ago to present) alluvial deposits are geological landforms in which Native American archaeological deposits that are not visible on the surface may be present.

Furthermore, although the results of the NAHC search of the Sacred Lands File were negative (Appendix B), local tribes that have previously ascribed interest in projects in the area may become actively engaged in tribal consultation under the California Environmental Quality Act (CEQA) pursuant to Assembly Bill 52. Tribal consultation under CEQA will be required as a prerequisite to adopting or certifying an Environmental Impact Report or Initial Study, and consultation under Section 106 will be required as part of any federal permitting or approvals. A common outcome of tribal consultation in this area is a request from tribes to be hired as construction monitors. It is important that the lead agency only entertain such a request if there is a reasonable potential for an impact to a resource identified through tribal consultation. A record of all correspondence to date is provided in Appendix B.

Lastly, cultural resources compliance will factor into work plans and associated ground disturbance activities. Under State law, the discovery of archaeological materials or human remains results in an automatic work stoppage at that location; however, work may continue in other parts of the property while the lead agency determines, in consultation with the project archaeologist and other parties, as appropriate, whether the find represents a historical resource under CEQA or a historic property under Section 106 (if applicable). In the event the find includes human remains, or remains that are potentially human, the San Joaquin County Coroner must be notified to determine if the remains are the result of a crime scene or that of a prehistoric Native American. If the latter, the Coroner must notify the California NAHC to identify a Most Likely Descendent (MLD) of the remains. The MLD will make recommendations to the landowner about the appropriate treatment and disposition of the remains, which may or may not

require mediation by the NAHC before construction activities may resume. The procedures are detailed in Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the California Public Resources Code.

The costs for addressing unanticipated discoveries can vary, depending on the type, size, and nature of the find. Based on ECORP's experience, the following general patterns apply:

- If the monitoring archaeologist determines that the find does not represent an intact historical resource and can make that determination quickly, work may resume at that location soon after discovery (typically within minutes) and without costlier archaeological excavation and treatment.
- If the monitoring archaeologist determines that the find represents an intact archaeological resource, a delay of ground-disturbing activity in order to evaluate the significance can take days or weeks before the lead agency can issue an authorization to resume at that location. The cost for archaeological excavation and evaluation can range between $5,000 and $50,000, although this number can increase if the discovery is large.
- If the find includes fragmented or redeposited human bone, there is typically a one- to four-day delay during the Coroner and MLD identification process. If the MLD recommends reburial in a manner consistent with past practice within the Project Area, the costs would be expected to be minimal. If the find includes intact human burials, there is an additional delay and cost for burial recovery that can take weeks to complete; the cost for burial removal, analysis, and reburial can be in the hundreds of thousands of dollars.

SUMMARY OF POTENTIAL RISKS

Based on the information presented above, ECORP concludes that there are no indications that the property is unusually constrained by cultural resources, with the following caveats:

- Although one previous study included a portion of the Project Area, that survey was more than 20 years ago. If ground disturbance will occur as part of the project, it is likely that reviewing agencies will require an updated study to include the entire Project Area, and this possibility increases if the project is subject to a federal undertaking under Section 106 National Historic Preservation Act. The presence of significant cultural resources can affect the level of environmental review under CEQA.
- As the Project Area is a portion of Yosemite Village Park, and the park is more than 50 years old, it is possible that reviewing agencies will require the entire 4.9 acre park area to be evaluated as a potential historic resource prior to any ground disturbing activity.
- TCRs may be identified only during tribal consultation, and those resources may not be visible. The lead agency may still impose construction-related mitigation measures or permit conditions.
- Ground-disturbing activity may result in the unanticipated discovery of cultural resources that can affect construction operations.

I hope this review is helpful to you. Due to the nature of archaeological deposits (i.e., not visible on the surface) and the absence of field visits, this desktop review cannot predict all potential exposures. If you have any questions or would like to discuss these issues in further detail, please contact me at Bmarks@ecorpconsulting.com or by phone at (916) 782-9100.

Sincerely,

DRAFT

Brian S. Marks, Ph.D., RPA
Senior Archaeologist

REFERENCES

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_____. 1996. California Historical Landmarks. California Department of Parks and Recreation, Sacramento, California.

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Windmiller, Ric and Donald Napoli. 2002. City of Manteca—General Plan Update, Background Reports: Archaeological Resources, Historical Resources, Records Search Results. Report on file at the Central California Information Center (CCIC), California State University Stanislaus, California

LIST OF APPENDICES

Appendix A – Records Search Confirmation

Appendix B – Sacred Lands File Coordination

APPENDIX A

Records Search Confirmation

CENTRAL CALIFORNIA INFORMATION CENTER

California Historical Resources Information System
Department of Anthropology – California State University, Stanislaus
One University Circle, Turlock, California 95382
(209) 667-3307

Alpine, Calaveras, Mariposa, Merced, San Joaquin, Stanislaus & Tuolumne Counties

Date: 3/28/2023

Records Search File No.: 12490L
Project: Manteca Well 29 Project, 2023-051.01

Arik J. K. Bord
ECORP Consulting, Inc. abord@ecorpconsulting.com
2525 Warren Drive
Rocklin, CA 95677
916-782-9100

The Central California Information Center received your record search request for the project area referenced above, located on the Manteca 7.5' quadrangle in San Joaquin County. The following reflects the results of the records search for the project study area and radius:

As per data currently available at the CCaIC, the locations of resources/reports are provided in the following format: ☒ custom GIS maps ☒ GIS Data/shape files

Summary Data:

Resources within the project area:	None formally reported to the Information Center.
Resources within the 1/2-mile radius:	4: P-39-005004, 5090, 5098, 5337
Reports within the project area:	1: SJ-04786
Reports within the 1/2-mile radius:	6: SJ-05309, 6625, 6739, 7214, 7762, 9257

Resource Database Printout (list):	☒ enclosed	☐ not requested	☐ nothing listed
Resource Database Printout (details):	☐ enclosed	☒ not requested	☐ nothing listed
Resource Digital Database Records:	☒ enclosed	☐ not requested	☐ nothing listed
Report Database Printout (list):	☒ enclosed	☐ not requested	☐ nothing listed
Report Database Printout (details):	☐ enclosed	☒ not requested	☐ nothing listed
Report Digital Database Records:	☒ enclosed	☐ not requested	☐ nothing listed
Resource Record Copies:	☒ enclosed	☐ not requested	☐ nothing listed
Report Copies:	☒ enclosed	☐ not requested	☐ nothing listed

OHP Historic Properties Directory: New Excel File: Built Environment Resource Directory (BERD) Dated 9/23/2022
Not all resources listed in the BERD are mapped in GIS, nor do we have records on file for; if you identify additional resources in the BERD that you need copies of, contact the IC.

	☐ enclosed	☒ not requested	☐ nothing listed
Archaeological Determinations of Eligibility:	☐ enclosed	☐ not requested	☒ nothing listed
CA Inventory of Historic Resources (1976):	☐ enclosed	☐ not requested	☒ nothing listed
Caltrans Bridge Survey:	☐ enclosed	☒ not requested	☐ nothing listed
Ethnographic Information:	☐ enclosed	☒ not requested	☐ nothing listed
Historical Literature:	☐ enclosed	☒ not requested	☐ nothing listed
Historical Maps:	☐ enclosed	☒ not requested	☐ nothing listed
Local Inventories:	☐ enclosed	☐ not requested	☒ nothing listed
GLO and/or Rancho Plat Maps:	☐ enclosed	☒ not requested	☐ nothing listed

Shipwreck Inventory: ☒ not available at CCIC; please go to http://shipwrecks.slc.ca.gov/ShipwrecksDatabase/Shipwrecks_Database.asp

Soil Survey Maps: ☒ not available at CCIC; please go to http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Requests made after initial invoicing will result in the preparation of a separate invoice.

Thank you for using the California Historical Resources Information System (CHRIS).

Note: Billing will be transmitted separately via email by our Financial Services office* ($301.55), payable within 60 days of receipt of the invoice.

If you wish to include payment by Credit Card, you must wait to receive the official invoice

from Financial Services so that you can reference the CMP # (Invoice Number), and then contact the link below:

https://commerce.cashnet.com/ANTHROPOLOGY

Sincerely,

E. A. Greathouse

E. A. Greathouse, Coordinator
Central California Information Center
California Historical Resources Information System

* Invoice Request sent to: ARBilling@csustan.edu, CSU Stanislaus Financial Services

APPENDIX B

Sacred Lands File Coordination

Arik Bord

From: NAHC@NAHC <NAHC@nahc.ca.gov>
Sent: Tuesday, March 28, 2023 11:26 AM
To: Arik Bord
Cc: Torres-Fuentes, Pricilla@NAHC
Subject: RE: Request for information, Manteca Well 29 Project, 2023-051.01
Attachments: MW29 Records Search 20230327 (v01).pdf; NAHC Letter_2023-051.01.pdf; NAHC-Sacred-Lands-NA-Contact-Form-revised_2023-051.01.pdf

Hello,

Thank you for your message. We're in receipt of your request. We have recently hired new staff, and this change in our office is creating some delays. We estimate a turn-around time of 4 weeks and don't anticipate responding sooner than the end of that time frame. Please let us know if you have any questions.

Kind regards,

Native American Heritage Commission
1550 Harbor Blvd. Suite 100
West Sacramento, CA 95691
(916) 373-3710

From: Arik Bord <abord@ecorpconsulting.com>
Sent: Monday, March 27, 2023 4:17 PM
To: NAHC@NAHC <NAHC@nahc.ca.gov>
Cc: Brian Marks <bmarks@ecorpconsulting.com>
Subject: Request for information, Manteca Well 29 Project, 2023-051.01

Good afternoon,

Attached, please find a request for a search of the Sacred Land File and a list of Native American Tribes for the Manteca Well 29 Project in San Joaquin County (ECORP Project Number 2023-051.01).

Thank you,

Arik J. K. Bord
Staff Archaeologist
ECORP Consulting, Inc.
ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS
2525 Warren Drive, Rocklin CA 95677
Ph: 916.782.9100 ◆ Direct Line: 916.251.5149 ◆ Cell: 916.660.6443 ◆ Fax: 916.782.9134
abord@ecorpconsulting.com ◆ www.ecorpconsulting.com
Rocklin ◆ Redlands ◆ Santa Ana ◆ San Diego ◆ Chico ◆ Santa Fe, NM

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

March 24, 2023

Native American Heritage Commission
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
nahc@nahc.ca.gov

RE: Cultural Resources Identification Effort for the Manteca Well 29 Project, Manteca, San Joaquin County, California

Dear NAHC Staff:

ECORP Consulting, Inc. has been retained to assist in the planning of the development on the project indicated above. This aspect of the Project proposes to install improvements and a water treatment system to an existing well. The Project Area is located in Section 5 of Township 2 South Range 7 East as depicted on the enclosed Manteca 1952 (photorevised 1994) USGS 7.5-minute quadrangle map in Manteca, California, San Joaquin County. As part of the identification effort, we are seeking information from all parties that may have knowledge of or concerns with historic properties or cultural resources in the area of potential effects.

Included is a map showing the project area outlined. We would appreciate the results of your search of the Sacred Lands File and list of tribal contacts who can be contacted to provide input on this undertaking.

Please email your response to my attention at abord@ecorpconsulting.com. If you have any questions, please contact me at (916) 782-9100.

Thank you in advance for your assistance.

Sincerely,

Arik J. K. Bord, RPA
Staff Archaeologist

Sacred Lands File & Native American Contacts List Request

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd
West Sacramento, CA 95691
(916) 373-3710
(916) 373-5471 – Fax
nahc@nahc.ca.gov

3/24/2023

Information Below is Required for a Sacred Lands File Search

Project: Manteca Well 29, 2023-051.01

County: San Joaquin

USGS Quadrangle: Manteca 1952 (Photorevised 1994)

Township: 2 South **Range:** 7 East **Section(s):** 5

Company/Firm/Agency: ECORP Consulting, Inc.

Contact Person: Arik J. K. Bord

Street Address: 2525 Warren Drive

City: Rocklin **Zip:** 95677

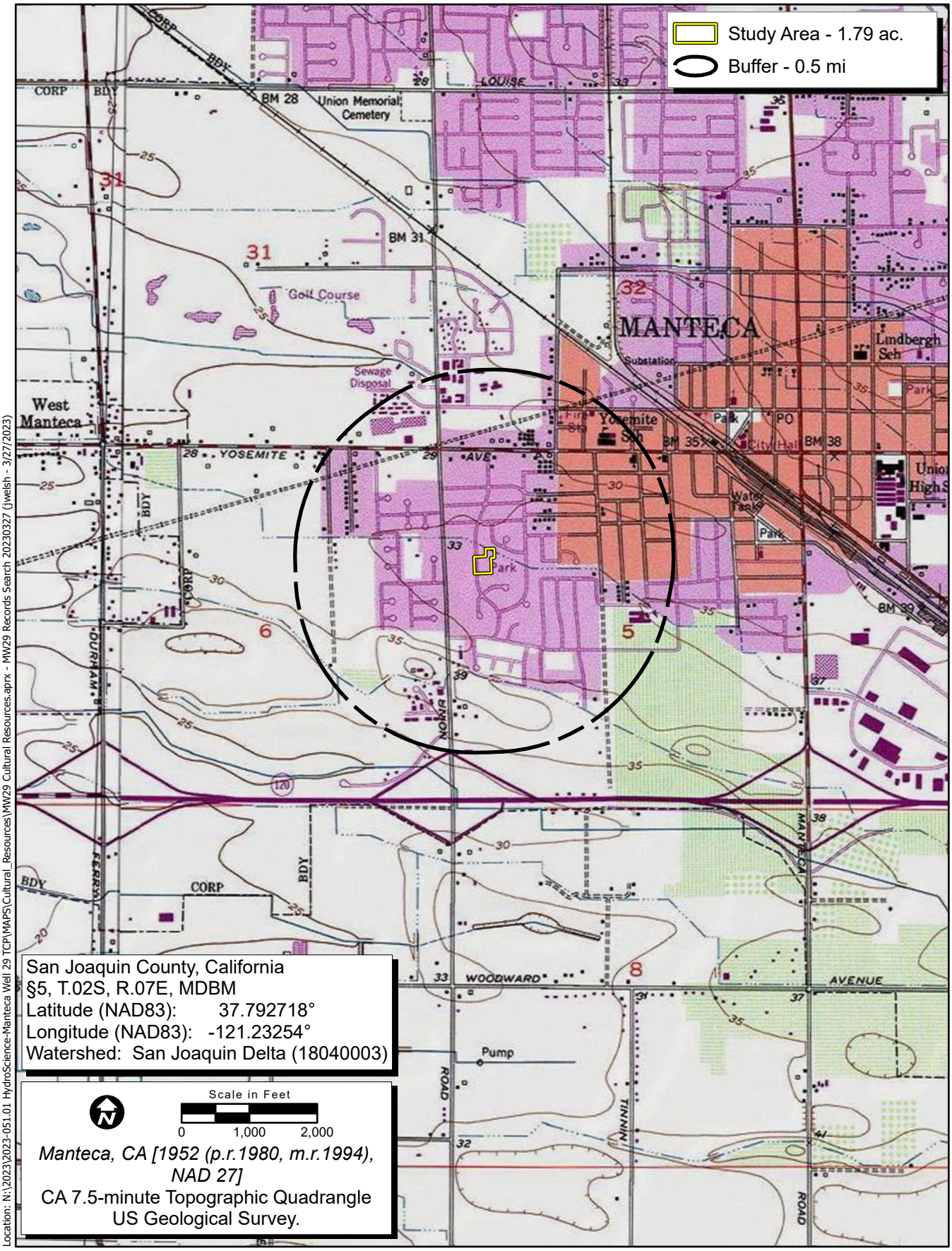
Phone: (916) 782-9100

Fax: (916) 782-9134

Email: abord@ecorpconsulting.com

Project Description:

See attached letter and map.



Location: N:\2023\2023-051.01 HydroScience-Manteca Well 29 TCP\MAPS\Cultural_Resources\MW29 Cultural Resources.aprx - MW29 Records Search 20230327 (jwelsh - 3/27/2023)

Map Date: 3/27/2023
Sources: ESRI, USGS

Records Search

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

2023-051.01 HydroScience-Manteca Well 29 TCP

Arik Bord

From: Torres-Fuentes, Pricilla@NAHC <Pricilla.Torres-Fuentes@nahc.ca.gov>
Sent: Wednesday, April 12, 2023 2:03 PM
To: Arik Bord
Subject: Manteca Well 29,2023-051.01 Project
Attachments: SLF No 2022 Manteca Well 29,2023-051.01 Project 4.12.23.pdf; Manteca Well 29,2023-051.01 list.pdf

Good afternoon,

Attached is the response to the project referenced above. If you have any additional questions, please feel free to contact our office email at nahc@nahc.ca.gov.

Regards,

Pricilla Torres-Fuentes
Native American Heritage Commission
1550 Harbor Blvd. Suite 100
West Sacramento, CA 95691
Pricilla.Torres-Fuentes@nahc.ca.gov
(916)373-3714 Direct
(916)373-3710 Office

NATIVE AMERICAN HERITAGE COMMISSION

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Stanley Rodriguez
Kumeyaay

COMMISSIONER
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COMMISSIONER
[VACANT]

EXECUTIVE SECRETARY
Raymond C. Hitchcock
Miwok/Nisenan

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

April 12, 2023

Arik Bord
ECORP Consulting, Inc.

Via Email to: abord@ecorpconsulting.com

Re: Manteca Well 29,2023-051.01 Project, San Joaquin County

Dear Mr. Bord:

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

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Pricilla.Torres-Fuentes@nahc.ca.gov.

Sincerely,

Pricilla Torres-Fuentes

Pricilla Torres-Fuentes
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
San Joaquin County
4/12/2023

Buena Vista Rancheria of Me-Wuk Indians
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This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Manteca Well 29, 2023-051.01 Project, San Joaquin County.

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APPENDIX D

Total Construction-Related Gasoline Usage

ECORP Consulting, Inc. 2023

Proposed Project
Total Construction-Related Gasoline Usage

Construction

Table 1. Construction Year One			
Action	**Carbon Dioxide Equivalents (CO_2e) in Metric Tons[1]**	**Conversion of Metric Tons to Kilograms[2]**	**Construction Equipment Emission Factor[2]**
Project Construction	056	56,000	10.15
Total Gallons Consumed During Construction Year One:			**5,517**

Sources:

[1]ECORP Consulting. 2022. Air Quality and Greenhouse Gas Emissions Assessment: Well 29 TCP Treatment Project

[2]Climate Registry. 2016. General Reporting Protocol for the Voluntary Reporting Program version 2.1. January 2016. http://www.theclimateregistry.org/wp-content/uploads/2014/11/General-Reporting-Protocol-Version-2.1.pdf

APPENDIX E

Geotechnical Report

Blackburn Consulting, 2023

GEOTECHNICAL REPORT

City of Manteca - Well 29 TCP Treatment Project

Manteca, CA

April 2023

Prepared for:

HydroScience

10569 Old Placerville Road
Sacramento, CA 95827

Prepared by:

BLACKBURN CONSULTING

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April 6, 2023
File No. 4228.003X

HydroScience Engineers
Mr. Bill Slenter, PE
10569 Old Placerville Road
Sacramento, CA 95827
bslenter@hydroscience.com

Subject: **GEOTECHNICAL REPORT**
City of Manteca Well 29 TCP Treatment Project
Manteca, California

Dear Mike,

Blackburn Consulting (Blackburn) is pleased to submit this Geotechnical Report for the City of Manteca's Well 29 TCP Treatment Project in Manteca, California. We prepared this report based on our November 9, 2022, proposal. Our report contains a summary of subsurface conditions and geotechnical design/construction recommendations.

Thank you for selecting Blackburn to be on your design team. Please call if you have questions or require additional information.

Sincerely,
BLACKBURN CONSULTING



Robert C. Pickard, PG, CEG
Project Manager

Reviewed by:



Haze M. Rodgers, PE, GE
Director of Geotechnical Services

Copies: Kennedy/Jenks Consultants, Inc. (PDF)

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1 INTRODUCTION

1.1 Purpose

Blackburn Consulting prepared this geotechnical report for design and construction of the City of Manteca's Well 29 TCP Treatment Project in Manteca, California (Project). Our report contains a summary of the surface and subsurface conditions encountered and geotechnical design/construction recommendations.

Blackburn prepared this report for HydroScience Engineers (HydroScience) and the City of Manteca for design and construction of the project. Do not use or rely upon the report for different locations or improvements without Blackburn's written consent.

1.2 Scope of Services

To prepare this report, Blackburn:

- Discussed the project with Bill Slenter, PE and Austin Poulson with HydroScience.
- Reviewed the project plans[1] provided by HydroScience.
- Observed the subsurface conditions in 2 borings drilled in the vicinity of the proposed improvements on March 9, 2023.
- Performed laboratory tests on soil samples obtained from the exploratory borings.

1.3 Site and Project Description

The project site is located east of El Portal Avenue on the west side of Yosemite Park adjacent to the existing Well 29 in Manteca, California. The approximate site location on Figure 1 - Vicinity Map. The project includes construction of six 12-foot diameter GAC treatment vessels supported by an at grade reinforced mat foundation and associated piping. Two tank locations are being considered. The primary tank site is the existing concrete basketball court north of Well 29. The alternate tank site is in the irrigated lawn east of Well 29. A reinforced concrete access road is planned from El Portal to the north side of the primary tank site. Photos 1 and 2 below show surface conditions during our subsurface exploration.

[1] Figure A, Well 29 GAC Treatment Plan by HydroScience; Survey Boundary, Well 29 GAC Treatment Plan by HydroScience emailed March 14, 2023; Drinking Water Treatment System Moderl 12 DWC, Cone, 8" Piping General Arrangement, November 15, 2022 by CalgonCarbon



Photo 1: Primary tank site looking southwest. Well 29 located in block building.



Photo 2: Alternative tank site looking south. Existing Well 29 is located on the right of photo.

We understand that significant grading is not anticipated and limited to minor cuts and fills . Figure 2 displays the site and proposed project improvements.

2 SITE GEOLOGY AND SUBSURFACE CONDITIONS

2.1 Site Geology

The project site is located in the Great Valley Geomorphic Province. The Great Valley Province includes the Sacramento and San Joaquin Valleys and is bound by the Sierra Nevada on the east and the Coast Ranges on the west.

The relatively flat surface of the Sacramento Valley is underlain by alluvial, lacustrine, and marine sedimentary deposits that have accumulated as the structural trough (Great Valley) formed and the adjacent mountain ranges were elevated. The thickness of the sediments varies from a thin veneer along the valley margins to thousands of feet at the axis of the trough. The main axis of the trough is oriented north-south along the valley's main drainage (over 20 miles east of the site).

We reviewed published mapping[2] and observed the site is underlain by Quaternary dune sand.

2.2 Faulting

The Fault Activity Map of California (Jennings and Bryant, 2010)[3] and the Geologic Map of the Sacramento Quadrangle (Wagner et al., 1981) do not identity Historic or Holocene age faults (displacement within the last 11,700 years) within or adjacent to the site. Faults with Historic or Holocene (last 11,700 years) rupture are often considered "active." The closest mapped fault to the site is the Quaternary Vernalis fault located approximately 6.8 miles southwest of the site.

The site does not lie within or adjacent to an Alquist–Priolo Earthquake Fault Zone (Bryant and Hart, 2007).[4]

2.3 Exploratory Borings and Soil Conditions

To explore the subsurface conditions, Blackburn's drilling subcontractor, Taber Drilling (Taber), drilled two borings (B-23-1 and B-23-2) on March 9, 2023, to depths ranging from 11.5 to 51.5 feet below existing ground surface (bgs). Blackburn's engineer, Luke Morrell, PE, observed the borings. Figure 2 shows the approximate boring locations.

Taber drilled the borings using 4 to 6-inch diameter solid stem augers above the groundwater and mud rotary below the groundwater. Luke obtained soil samples at various intervals using both 3.0-inch.

O.D. Modified California samplers (equipped with 2.4-inch diameter brass liners) and 2–inch O.D.

[2] "Geologic Map of the San Francisco-San Jose Quadrangle, California"; Regional Geologic Map Series; Map No. 5A; California Division of Mines and Geology; D.L. Wagner, E.J. Bortugno, R.D. McJunkin, 1991.
[3] Jennings, C.W., and Bryant, W.A., 2010, Fault Activity Map of California, California Geological Survey, California Geologic Data Map Series, Map No. 6.
[4] Bryant, W.A., and Hart, E.W., 2007 (Interim Revision), Fault-Rupture Hazard Zones in California: California Department of Conservation, Division of Mines and Geology, Special Publication 42.

Standard Penetration (SPT) samplers. Taber used a safety semi-automatic hammer, weighing 140-pounds and falling approximately 30-inches per blow, to drive samplers. Luke also collected bulk samples at various depths within the borings. Luke transported the samples to our lab for testing.

Taber backfilled the holes with neat cement grout. A representative from San Joaquin County's Department of Environmental Health observed Taber backfill boring BC-23-1.

We encountered approximately 4 feet of loose silty sandy overlying interbedded layers of medium dense silty sands and sands, and very stiff to hard silt and clay with varying amounts of sand to 51.5 feet (maximum depth explored). Refer to our boring logs (Appendix A) for more specific subsurface conditions.

2.4 Groundwater

We observed groundwater in borehole BC-23-1 at approximately 23 feet bgs during drilling (approximate elevation 10 feet[5]). Taber continued drilling BC-23-1 using the mud-rotary method. We did not observe groundwater in boreholes BC-23-2.

We reviewed groundwater level data available at the California Department of Water Resources website (https://gis.water.ca.gov/app/gicima/). Seasonal groundwater depths range from about 20 to 30 feet below existing grade (approximate elevation 3 to 13 feet5) near the site.

Groundwater and perched water levels can fluctuate due to changes in precipitation, waterway levels , irrigation, pumping of wells, and other factors.

3 LABORATORY TESTS

We performed lab tests on representative soil samples taken from the exploratory borings for:

- Unit weight and moisture content tests for in-situ soil consistency determination.
- #200 wash sieve analysis for soil classification.
- Plasticity index for soil classification and soil expansion potential.
- Soil corrosivity (pH, resistivity, sulfate, and chlorides) for soil corrosion characteristics.
- Direct shear test for soil strength.

We present laboratory test results in Appendix B and include the unit weight, moisture content on the boring logs in Appendix A.

[5] Elevation estimated based on USGS 7.5' Topographic Map, Manteca, 1952, revised 1994, vertical datum National Geodetic Vertical Datum of 1929.

4 CONCLUSIONS AND RECOMMENDATIONS

4.1 2019 California Building Code Seismic Parameters

Blackburn used the SEAOC/OSHPD Seismic Design Maps Tool to determine our recommended 2019 California Building Code (CBC) seismic design parameters are considered:

- ASCE 7-16 Reference Standard
- Risk Category 1
- Site Class D – Stiff Soil
- Latitude: 37.792285 Longitude: -121.232034
- Structure meets one or more of the exceptions identified in ASCE 7-16 Section 11.4.8.

These inputs were selected based on the subsurface conditions encountered near the pump station. Table 4 presents our recommended 2019 CBC seismic design parameters.

Table 4: 2022 CBC Seismic Design Parameters	
S_s – Acceleration Parameter	0.798
S_1 – Acceleration Parameter	0.301
F_a – Site Coefficient	1.2
F_v – Site Coefficient	*1.999**
S_{MS} – Adjusted MCE Spectral Response Acceleration Parameter	0.957
S_{M1} – Adjusted MCE Spectral Response Acceleration Parameter	*0.602**
S_{DS} – Design Spectral Response Acceleration Parameter	*0.638*
S_{D1} – Design Spectral Response Acceleration Parameter	*0.401**
PGA	0.332
PGA_M- MCE PGA adjusted for site effects	0.421
T_L – Long Period Transition Period	8

* Blackburn calculated values assuming the exception for a ground motion hazard analysis per ASCE 7-16, 11.4.8.

Blackburn should be notified if the assumptions listed above are incorrect. Blackburn should perform a site-specific response analysis for final design if the proposed design does not meet the exception noted above.

4.2 Liquefaction Evaluation

Soil liquefaction can occur when saturated, relatively loose sand and low-plasticit soft fine-grained saturated soil are subject to ground shaking strong enough to generate adequate excess pore pressure to separate soil particles. This separation and subsequent pore pressure dissipation can lead to decreased soil shear strength and settlement.

The liquefaction susceptibility of a soil deposit is a function of the soil grain size, relative density, percent fines (clay and silt), plasticity of the fines, degree of saturation, age of deposit, and earthquake ground motion. Blackburn used the simplified procedure outlined by Youd et al. (2001)[6] to evaluate the potential for soil liquefaction to occur at the site.

Blackburn performed a probabilistic seismic–hazard deaggregation using the USGS Unified Hazard web tool (https://earthquake.usgs.gov/hazards/interactive/) to evaluate the site-to-fault distance and Maximum Moment Magnitude (Mmax) of earthquake scenarios that have significant contributions to the projects seismic hazard for our liquefaction evaluation. The deaggregated results for the PGA show site-to-fault distances ranging from approximately 16 to 24 miles and earthquake magnitudes ranging from 6.46 to 7.16 have significant contributions to the sites seismic hazard. We evaluated the various combinations of fault distance and earthquake magnitude for our liquefaction evaluation. We used a Peak Ground Acceleration (PGAM) of 0.421 g for the site and a ground water depth of 20 feet (approximate elevation of 14 feet), to represent anticipated high ground water levels at the site.

Using the above parameters, Blackburn evaluated liquefaction potential at the site using the subsurface data for Boring BC-23-1. Our evaluation indicates that the medium dense poorly graded sand at a depth of 33.5 to 43.5 feet and the very stiff lean clay at 43.5 to 48.5 feet is potentially liquefiable (safety factor not greater than 1.0).

4.3 Seismic Settlement Evaluation

Blackburn used methods outlined by Idriss and Boulanger (2008)[7] to estimate post-liquefaction settlement. The method follows the approach developed by Ishihara and Yoshimine (1992) that relates volumetric strain, SPT (N1)60cs, and the factor of safety against liquefaction to estimate the post-liquefaction settlement of a liquefied layer.

Our analysis of Boring BC-21-1 data yielded a total potential post-liquefaction settlement of about 1.2 inches within the liquefiable layers of soil from 33.5 to 48.5 feet below existing grade. However, the actual amount of settlement at the surface from these layers will be less due the thickness and strength of the overlying soil layers.

We used Pradel's[8] method to estimate settlement in dry sand to evaluate settlement of sand layers overlying the saturated soils. Our analysis shows that the sands overlying the groundwater may settle approximately 0.15 inches during the design earthquake.

4.4 Settlement Evaluation

Blackburn used RocScience Settle3 software and soil data from boring BC-23-1 to evaluate immediate

[6] Youd, T. L., et al, Journal of Geotechnical and Geoenvironmental Engineering, Vol. 127, No. 10, October 2001, pp. 817-833.
[7] Idriss, I. M. and Boulanger, R. W., "Soil Liquefaction During Earthquakes," Earthquake Engineering Research Institute, pages 140-142 and 152-158, 2008.
[8] Pradel, D, "Procedure to Evaluate Earthquake-Induced Settlements in Dry Sand, Journal of Geotechnical and Geoenvironmental Engineering", April 1998

settlement and long-term consolidation. To develop our model, we used the following parameters:

- Loading:
  - Assumed 2-foot-thick mat thickness (pressure = 300 psf).
  - Six 12 foot diameter circular tanks distributed.
  - Tank Pressure of 800 psf.
- Soil Parameters:
  - For immediate settlement we determined modulus values Es based on published values and SPT correlation equations from Bowles[9] and FHWA[10].
  - For consolidation settlement we determined consolidation parameters (Cc, Cr, void ratio, and OCR) from published values and SPT correlations [11][12].

To limit immediate settlement of the upper 4 feet of loose sands over-excavate and recompact the soil within the footprint of the concrete mat foundation supporting the GAC tanks to a depth of 2.5 feet below the bottom of the foundations (approximately 4 feet below existing grade). Our Settle3 analysis shows immediate settlement of approximately 1 inch will occur within approximately the first year after construction and long-term consolidation settlement of approximately 0.25 inches will occur over subsequent years. We expect differential settlement of approximately 0.5 inches across the length of the mat foundation.

4.5 Grading

Where referenced in this report, use ASTM D 1557 test method to determine relative compaction and optimum moisture. Compacted soil is not suitable (even if it meets relative compaction requirements) if it is unstable and pumps or flexes excessively under construction equipment loads.

4.5.1 Excavations

The soil encountered in our explorations should be excavatable with conventional earthmoving equipment (e.g., scrapers, dozers, backhoes, and hydraulic excavators) to typical excavation depths.

On a preliminary basis, use temporary excavation sloping and shoring for Type C soil (Federal Register, 29 CFR, Part 1926, Subpart P; Occupational Safety and Health Standards – Excavations). We base this soil type on the hard fine-grained soils and medium dense to dense granular soils encountered in our borings. For Type C soil conditions, temporary excavations may be sloped at 1.5(H) to 1(V). Even with proper sloping, some sloughing of side slopes may occur.

All excavations must be sloped, shored, and/or shielded in accordance with current Cal/OSHA requirements. The contractor is responsible for site safety, final excavation and shoring design (including OSHA soil type determination) and construction, based on actual excavation conditions (including trench

[9] Bowles, J.E., "Foundation Analysls and Design", 5th Edition, 1997
[10] FHWA, "Soil and Foundations – Volume 1, Table 5-16" December 2006
[11] Koppula, D.D., "Statistical estimation of compression index", Geotechnical Testing Journal, Vol 4, Iss: 2, May 31, 1981
[12] Kulhawy, F.H. and Mayne, P.W., "Manual for Estimating Soil Properties for Foundation Design", EPRI EL-6800, 1990.

spoils, equipment, stockpiles, etc.) encountered during construction. The contractor is also responsible for the protection of existing facilities and improvements. At the time of construction, the contractor must evaluate and adjust accordingly excavation sloping/shoring methods based on:

- The impact of construction traffic vibrations.
- Actual soil conditions exposed in the open excavations.
- Seepage and/or groundwater conditions.
- Surcharges adjacent to excavations.
- Proximity of excavations to existing structures.
- Other factors that may promote excavation wall instability or cause excavation related damage to existing facilities and improvements.

4.5.2 Original Ground and Subgrade Preparation, and Loose Soil Mitigation

Prior to site grading, remove vegetation, debris, abandoned utilities, soft or unstable areas, or other deleterious materials.

Strip the site to a depth of approximately 2 inches to remove surface vegetation and associated organics where present. Do not use strippings to fill in building, pavement, or other structural areas. Consult the landscape architect to determine if strippings are acceptable for use as fill in landscape areas.

Over-excavate and recompact the soil within the footprint of the concrete mat foundation supporting the GAC tanks to a depth of 2.5 feet below the bottom of the foundations (approximately 4 feet below existing grade). The over-excavation and recompaction should extend at least 5 feet laterally beyond the edge of the foundations except for the south side of the pad where existing facilities will not make this possible. Excavation sides may need to be sloped due to lose sand sloughing in approximately the upper 4 feet of excavations. Sloughed soil should be removed and/or recompacted. Scarify and compact the exposed subgrade at the bottom of the over-excavated area as recommended below. Soil that sloughs into excavations should be removed prior to subgrade preparation and foundation construction. Sloughed soil can be incorporated into fill layers provided the layers below have been compacted adequately and the resulting fill thickness can be compacted. Place and compact fill in accordance with Section 4.4.4 of this report.

Process and compact the exposed native subgrade as follow:

1. Scarify the subgrade to a depth of 8 inches.
2. Moisture conditions the scarified soil to 1% to 3% above the optimum moisture content.
3. Compact scarified subgrade to a minimum of 90% relative compaction based on ASTM D 1557 test procedure.

Blackburn must observe all excavations prior to backfill placement to verify that competent bearing materials have been exposed.

4.5.3 Fill and Compaction

The on-site soil may be used as fill provided it is free of debris and visible concentrations of vegetation and has

a maximum particle size of 4 inches. Refer to Section 4.4.3 for restrictions on using on-site strippings as fill.

Imported fill must meet the following requirements:

- No concentrations of organics, debris, and other deleterious materials,
- Maximum particle size of 1-inch, with at least 50 percent passing the No. 4 Sieve and at least 20 percent passing the No. 200 Sieve, and
- Expansion index less than 25, per ASTM D4829.

Place and compact on-site soil and imported fill as follows:

1. Place fill in loose lifts no thicker than 8 inches prior to compaction.
2. Moisture condition fill to –1% to 2% above the optimum moisture content.
3. Compact fill to at least 95% relative compaction within mat foundation excavation (mat plus 5 feet beyond edge see Section 4.4.3) , and within the upper 12-inches of concrete pavement subgrade.
4. Compact all other fill to at least 90% relative compaction.

CLSM may also be used as backfill. CLSM must meet the requirements of Section 19-3.02G (Controlled Low-Strength Material) of the 2015 Caltrans Standard Specifications, except the 28-day compressive strength shall be between 50 psi and 200 psi.

4.5.4 Over-optimum Soil Moisture

Over-optimum (wet) soil conditions can make proper compaction difficult or impossible. Wet soil is commonly encountered during the winter and spring months, in excavations where groundwater or perched ground water is encountered, or at any time of year within and adjacent to landscape areas or beneath existing pavement.

In general, wet soil can be mitigated by:

- Discing the soil during prolonged periods of dry weather,
- Remove and replacement with drier material,
- Lime or cement treatment or stabilization using aggregate and stabilization fabric or grid.

If wet, unstable soil is encountered, retain Blackburn to observe the conditions and provide specific mitigation recommendations.

4.6 Utility Trenches

4.6.1 Trench Excavation Stability

Vertical trenches in the loose silty sands identified in the upper 4 feet may not be stable and sloughing of excavation side slopes may occur. The contractor is responsible for the selection, design, and installation of necessary shoring. Refer to Section 4.4.1 for excavation sloping and shoring considerations. Soil that sloughs into excavations should be removed prior to subgrade preparation and foundation construction. Sloughed soil can be incorporated into fill layers provided the layers below have been compacted adequately and the

resulting fill thickness can be compacted.

4.6.2 Trench Dewatering

We do not anticipate that open cut trenches will encounter the static groundwater table. Perched ground water could be encountered in excavations during the winter and spring months. In general, we anticipate that sump pumps can be used to dewater open cut trench excavations if perched water is encountered.

4.6.3 Backfill

On-site native soil can be used as trench backfill outside the pipe bedding and pipe zone limits provided it is free of significant concentrations of organics, debris, and other deleterious materials. Trench backfill and/or CLSM must meet the requirements of Section 4.4.4.

Place trench backfill in maximum 12-inch thick loose lifts, moisture condition at 1% to 2% above the optimum moisture content. City of Manteca Standards specify the upper 2.5 feet of trench backfill be compacted to 95% relative compaction. Trench backfill below the upper 2.5 feet is to compacted to 90% relative compaction. Jetting is not acceptable for compaction.

Soil excavated during trenching may have a moisture content well over optimum, especially during the winter and spring months, within or adjacent to landscape areas, beneath pavements or if perched water is encountered. In this case, it will be necessary to dry back the soil prior to use as backfill.

Although we do not anticipate soft unsuitable pipe foundation subgrade at any location, notify the project engineer and Blackburn to review conditions and provide specific mitigation recommendations if encountered. Typical mitigation may include replacement of unsuitable subgrade with ¾-inch minus crushed rock (6-12 inches thick), enclosed in geotextile filtration fabric to achieve a stable and non-yielding subgrade suitable for pipe placement and backfilling.

4.7 Shallow Mat Foundations

Provided our site grading recommendations (Section 4.4) are performed a stiffened mat foundation is suitable to support the proposed GAC tanks.

- Embed the mat foundations a minimum of 18 inches below the surface on the engineered fill as specified in section 4.4.3 and 4.4.4.
- Size the mat not to exceed an allowable bearing pressure of 1,100 pounds per square foot (psf). This value may be increased by one-third for transient loads with the alternative basic load combinations in Section 1605.3.2 (2019 California Building Code) that include wind or seismic loads.
- Considering a uniform bearing pressure, use a Modulus of Subgrade Reaction, ks, of 7 kips per cubic foot (kcf) in the center of the mat, 8 kcf along the mat edge, 11 kcf at the mat corners, and 15 kcf below the tanks. The load-deformation (settlement) behavior of soil is non-linear and complex. Blackburn should review preliminary estimated bearing pressures and settlements from the structural calculations of the mat to confirm the values are

consistent with the geotechnical calculations and subgrade moduli' provided. Blackburn will provide updated subgrade moduli if values are significantly different.

- For mat foundations designed in accordance with the recommendations above, we estimate total immediate settlement of approximately 1 inch and differential settlement of approximately 1/2-inch across the length of the mat foundation. We expect an additional long-term consolidation settlement of 0.25 inches.
- To resist lateral movement, use a coefficient of friction of 0.40 and ultimate passive earth pressure of 340 psf per foot of depth. The allowable passive earth pressure can be increased by one-third for transient loads where used with the alternative basic load combinations in Section 1605.3.2 (2019 California Building Code) that include wind or seismic loads.
- Clean excavations of debris and loose soil prior to placing concrete.
- Slope the ground surface away from the mat foundations at a minimum of 2 percent for a distance of at least 5 feet.
- Blackburn must observe all excavations prior to reinforcement placement to verify that competent bearing materials have been exposed.

4.8 Concrete Pavement

Considering the subsurface conditions encountered in the borings and the anticipated size/weight of the proposed trucks we recommend the subgrade beneath the access road be prepared in accordance with Section 4.4.3 and 4.4.4. Design the access road concrete pavement in accordance with ACI 330R-08. Use a Subgrade Reaction, ks, of 180 pounds per cubic inch.

We recommend a minimum concrete pavement section of 7.0 inches of concrete over a minimum 6.0 inches of Class 2 Aggregate Base. The concrete should have a minimum 28-day compressive strength of 4,000 psi.

AB should conform to Caltrans Class 2 requirements. Moisture condition and compact AB to a minimum 95% relative compaction. Prior to placing concrete, the aggregate base should be stable under the weight of a loaded water truck. Mitigate unstable areas as recommended by Blackburn.

Construct steel reinforcement and joints in accordance with ACI 330R-08 guidelines to help control shrinkage cracking.

4.9 Concrete Flatwork

Exterior flatwork for pedestrian traffic only such as sidewalks and patios may be placed directly on the prepared subgrade without rock underlayment. The subgrade should be free of debris, uniformly compacted to 90% ASTM D1557 before the concrete is placed. Flatwork must be properly jointed to allow for slab shrinkage and movement. ACI provides recommendations on slab jointing based on slab thickness, location, and use.

4.10 Soil Corrosivity

Table 2 presents the soil corrosivity test results.

Table 2: Soil Corrosivity Test Results						
Boring No.	**Sample No.**	**Depth (ft.)**	**pH**	**Minimum Resistivity (ohm-cm)**	**Chloride Content (ppm)**	**Sulfate Content (ppm)**
BC-23-1	1B	2.0-2.5	7.70	4,820	3.7	0.8

Based on the above test results, structural concrete in contact with the ground should meet the concrete and reinforcing steel requirements of the American Concrete Institute's Building Code Requirements for Structural Concrete (ACI 318-14) for exposure class S0 (sulfates) and exposure class C1 (chlorides).

The above test results indicate that the soil at the site is corrosive to steel and other metals. We are not corrosion consultants and cannot evaluate the potential corrosion impacts to metallic elements embedded in or in contact with the ground. Retain a corrosion consultant to provide specific corrosion protection recommendations if buried metallic elements are used at the site.

5 RISK MANAGEMENT

Our experience and that of our profession clearly indicates that the risks of costly design, construction, and maintenance problems can be significantly lowered by retaining the geotechnical engineer of record to provide additional services during design and construction. For this project, retain Blackburn to:

- Review preliminary structural calculations for the mat to confirm the estimated bearing pressures and settlement are consistent with the geotechnical conditions. If calculated bearing pressure and estimated settlements are significantly different, Blackburn will provide updated recommended subgrade moduli.
- Review and provide comments on the civil and structural plans and specifications prior to construction.
- Attend a preconstruction meeting with the owner, general contractor, earthwork contractor and underground contractor prior to site clearing, grubbing and demolition of existing structures to review geotechnical recommendations, testing requirements and project schedule.
- Observe removal of underground utilities, foundations, vegetation (root balls and roots) and other underground features in accordance with the project plans, specifications and this Geotechnical Report including loose soil generated from the removal.
- Monitor construction to check and document our report assumptions. At a minimum, Blackburn should monitor (and tests were applicable) bottom of excavations beneath tank pad and access road, fill placement and compaction, foundation excavations, and pavement subgrade and aggregate base compaction.
- Update this report if design changes occur, 2 years or more elapses between this report and construction, and/or site conditions have changed.

If we are not retained to perform the above applicable services, we are not responsible for any other party's interpretation of our report, and subsequent addendums, letters, and discussions.

6 LIMITATIONS

Blackburn performed services in accordance with generally accepted geotechnical engineering principles and practices currently used in this area. Where referenced, we used ASTM or Caltrans standards as a general (not strict) guideline only. We do not warranty our services.

Blackburn based this report on the current site conditions. We assume the soil and groundwater conditions encountered in our borings are representative of the subsurface conditions across the site. Actual conditions between these locations could be different.

Our scope did not include evaluation of on-site hazardous material, flood potential, aerial photograph review, or biological pollutants. Please contact Blackburn if you would like an evaluation of one or more of these potential issues.

Appendix A presents our exploratory boring logs. The lines designating the interface between soil types are approximate. The transition between soil types may be abrupt or gradual. Our recommendations are based on the final logs, which represent our interpretation of the field logs, laboratory test results, and general knowledge of the site and geological conditions.

Refer to Appendix C (Important Information about This Geotechnical Engineering Report, Geoprofessional Business Association, 2019) for additional limitations regarding this report.

Modern design and construction is complex, with many regulatory sources/restrictions, involved parties, construction alternatives, etc. It is common to experience changes and delays. The owner should set aside a reasonable contingency fund based on complexities and cost estimates to cover changes and delays.

GEOTECHNICAL REPORT

City of Manteca - Well 29 TCP Treatment Project

Manteca, CA

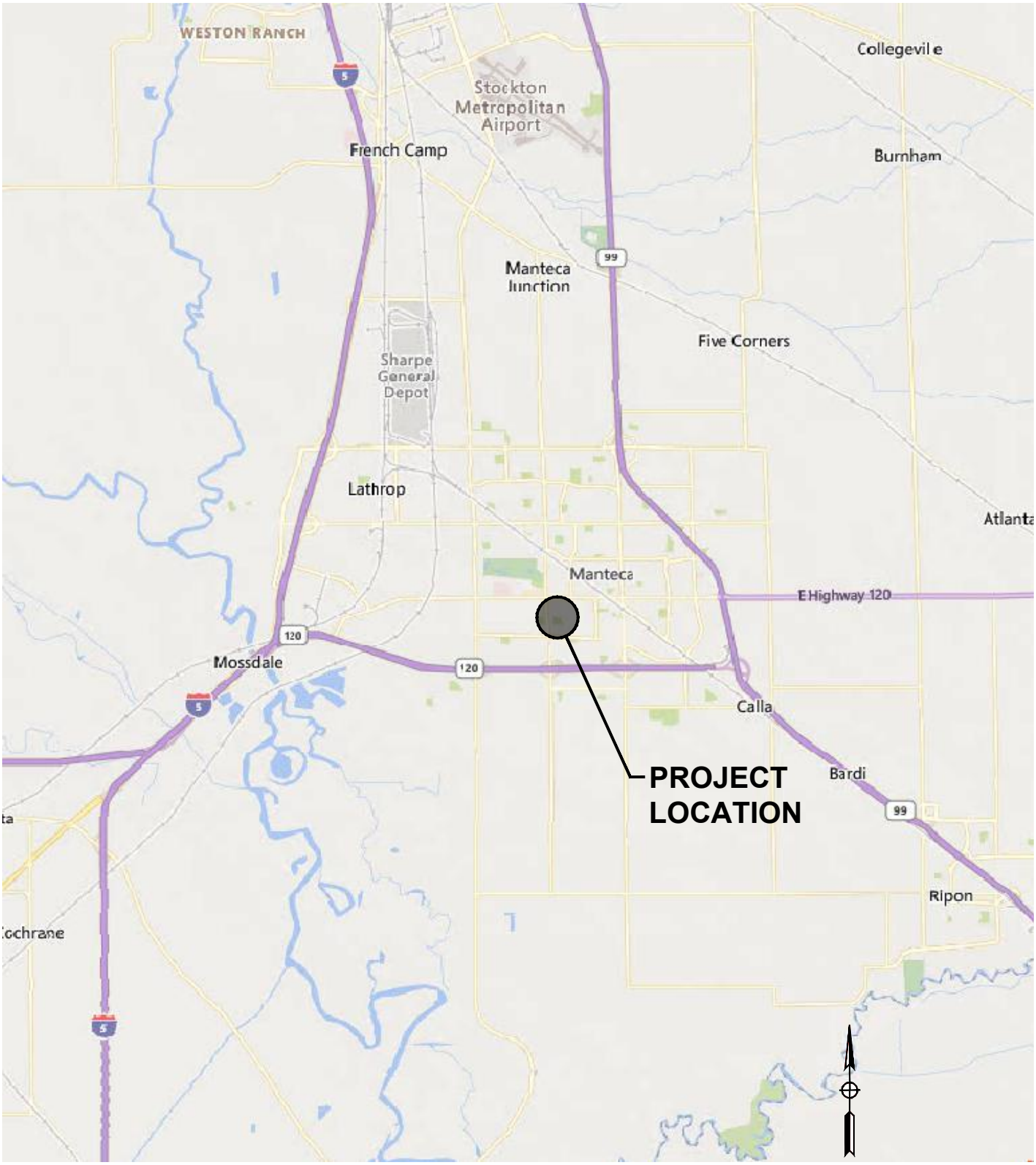
April 2023

FIGURES

Figure 1: Vicinity Map

Figure 2: Site Plan

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3/30/2023 4228_003 FIG 1 Vic Map.dwg

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VICINITY MAP

City of Manteca Well 29 TCP Treatment

San Joaquin County, California

File No. 4228.003
April 2023
Figure 1

LEGEND

BC-23-001 — Approximate Location of Blackburn Boring

SCALE: 1"= 30'

Distance, feet: 0 15 30 45 60

(N) 16 FT WIDE ACCESS DRIVEWAY

(N) SSMH

(N) SSMH

6" SSCO

2" HB

BC-23-2

EXISTING BASKETBALL COURT TO BE REMOVED/RELOCATED

16 FT ROLLING GATE

EXISTING TREE TO REMAIN

CONTINUE EXISTING FENCING AROUND GAC TREATMENT SITE

RELOCATE HYPO INJECTION FROM WELLHEAD TO GAC TREATMENT DISCHARGE

12-FT DIA GAC TREATMENT VESSELS x6

EXISTING TREES TO REMAIN

Alternate Site Improvement Location

BC-23-1

2" W

4" DRAIN TO SEWER

WELL 29

(N) 12" RAW WATER AND TREATED WATER

(N) 8" BACKWASH WASTE

DRAIN TO SEWER/STORM SELECTION VALVES

TIE-IN TO (E) 12" RW

EXISTING TREES TO REMAIN

Source: Well 29 GAC Treatment, CEQA Figure A, HydroScience

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SITE PLAN

City of Manteca Well 29 TCP Treatment

San Joaquin County, California

File No. 4228.003

April 2023

Figure 2

4/3/2023 4228_003 FIG 2 Site Plan.dwg

GEOTECHNICAL REPORT

City of Manteca - Well 29 TCP Treatment Project

Manteca, CA

April 2023

APPENDIX A

Boring Log Legend Boring Logs

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GROUP SYMBOLS AND NAMES

Graphic / Symbol	Group Names
GW	Well-graded GRAVEL Well-graded GRAVEL with SAND
GP	Poorly graded GRAVEL Poorly graded GRAVEL with SAND
GW-GM	Well-graded GRAVEL with SILT Well-graded GRAVEL with SILT and SAND
GW-GC	Well-graded GRAVEL with CLAY (or SILTY CLAY) Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)
GP-GM	Poorly graded GRAVEL with SILT Poorly graded GRAVEL with SILT and SAND
GP-GC	Poorly graded GRAVEL with CLAY (or SILTY CLAY) Poorly graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)
GM	SILTY GRAVEL SILTY GRAVEL with SAND
GC	CLAYEY GRAVEL CLAYEY GRAVEL with SAND
GC-GM	SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL with SAND
SW	Well-graded SAND Well-graded SAND with GRAVEL
SP	Poorly graded SAND Poorly graded SAND with GRAVEL
SW-SM	Well-graded SAND with SILT Well-graded SAND with SILT and GRAVEL
SW-SC	Well-graded SAND with CLAY (or SILTY CLAY) Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)
SP-SM	Poorly graded SAND with SILT Poorly graded SAND with SILT and GRAVEL
SP-SC	Poorly graded SAND with CLAY (or SILTY CLAY) Poorly graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)
SM	SILTY SAND SILTY SAND with GRAVEL
SC	CLAYEY SAND CLAYEY SAND with GRAVEL
SC-SM	SILTY, CLAYEY SAND SILTY, CLAYEY SAND with GRAVEL
PT	PEAT
	COBBLES COBBLES and BOULDERS BOULDERS

Graphic / Symbol	Group Names
CL	Lean CLAY Lean CLAY with SAND Lean CLAY with GRAVEL SANDY lean CLAY SANDY lean CLAY with GRAVEL GRAVELLY lean CLAY GRAVELLY lean CLAY with SAND
CL-ML	SILTY CLAY SILTY CLAY with SAND SILTY CLAY with GRAVEL SANDY SILTY CLAY SANDY SILTY CLAY with GRAVEL GRAVELLY SILTY CLAY GRAVELLY SILTY CLAY with SAND
ML	SILT SILT with SAND SILT with GRAVEL SANDY SILT SANDY SILT with GRAVEL GRAVELLY SILT GRAVELLY SILT with SAND
OL	ORGANIC lean CLAY ORGANIC lean CLAY with SAND ORGANIC lean CLAY with GRAVEL SANDY ORGANIC lean CLAY SANDY ORGANIC lean CLAY with GRAVEL GRAVELLY ORGANIC lean CLAY GRAVELLY ORGANIC lean CLAY with SAND
OL	ORGANIC SILT ORGANIC SILT with SAND ORGANIC SILT with GRAVEL SANDY ORGANIC SILT SANDY ORGANIC SILT with GRAVEL GRAVELLY ORGANIC SILT GRAVELLY ORGANIC SILT with SAND
CH	Fat CLAY Fat CLAY with SAND Fat CLAY with GRAVEL SANDY fat CLAY SANDY fat CLAY with GRAVEL GRAVELLY fat CLAY GRAVELLY fat CLAY with SAND
MH	Elastic SILT Elastic SILT with SAND Elastic SILT with GRAVEL SANDY elastic SILT SANDY elastic SILT with GRAVEL GRAVELLY elastic SILT GRAVELLY elastic SILT with SAND
OH	ORGANIC fat CLAY ORGANIC fat CLAY with SAND ORGANIC fat CLAY with GRAVEL SANDY ORGANIC fat CLAY SANDY ORGANIC fat CLAY with GRAVEL GRAVELLY ORGANIC fat CLAY GRAVELLY ORGANIC fat CLAY with SAND
OH	ORGANIC elastic SILT ORGANIC elastic SILT with SAND ORGANIC elastic SILT with GRAVEL SANDY elastic ELASTIC SILT SANDY ORGANIC elastic SILT with GRAVEL GRAVELLY ORGANIC elastic SILT GRAVELLY ORGANIC elastic SILT with SAND
OL/OH	ORGANIC SOIL ORGANIC SOIL with SAND ORGANIC SOIL with GRAVEL SANDY ORGANIC SOIL SANDY ORGANIC SOIL with GRAVEL GRAVELLY ORGANIC SOIL GRAVELLY ORGANIC SOIL with SAND

FIELD AND LABORATORY TESTS

C	Consolidation (ASTM D 2435)
CL	Collapse Potential (ASTM D 5333)
CP	Compaction Curve (ASTM D 698 & 1557, CTM 216)
CR	Corrosion, Sulfates, Chlorides (CTM 643, CTM 417, CTM 422)
CU	Consolidated Undrained Triaxial (ASTM D 4767)
DS	Direct Shear (ASTM D 3080)
EI	Expansion Index (ASTM D 4829)
M	Moisture Content (ASTM D 2216)
OC	Organic Content (ASTM D 2974)
P	Permeability (ASTM D 5084)
PA	Particle Size Analysis (ASTM D 6913 & 7928)
PI	Liquid Limit, Plastic Limit, Plasticity Index (ASTM D 4318)
PL	Point Load Index (ASTM D 5731)
PM	Pressure Meter
PP	Pocket Penetrometer
R	R-Value (CTM 301)
SE	Sand Equivalent (CTM 217)
SG	Specific Gravity (AASHTO T100)
SL	Shrinkage Limit (ASTM D 4943)
SW	Swell Potential (ASTM D 4546)
TV	Pocket Torvane
UC	Unconfined Compression - Soil (ASTM D 2166) Unconfined Compression - Rock (ASTM D 7012)
UU	Unconsolidated Undrained Triaxial (ASTM D 2850)
UW	Unit Weight (ASTM D 7263)
VS	Vane Shear (AASHTO T223 / ASTM D 2573)

SAMPLER GRAPHIC SYMBOLS

- Standard Penetration Test (SPT)
- California Sampler (2" ID)
- Modified California Sampler (2.4" ID)
- Shelby Tube
- Piston Sampler
- NX Rock Core
- HQ Rock Core
- Bulk Sample
- Other (see remarks)

DRILLING METHOD SYMBOLS

- Auger Drilling
- Rotary Drilling
- Dynamic Cone or Hand Driven
- Diamond Core

WATER LEVEL SYMBOLS

- First Water Level Reading (during drilling)
- Static Water Level Reading (short-term)
- Static Water Level Reading (long-term)

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BORING RECORD LEGEND

CONSISTENCY OF COHESIVE SOILS				
Descriptor	**Unconfined Compressive Strength (tsf)**	**Pocket Penetrometer (tsf)**	**Torvane (tsf)**	**Field Approximation**
Very Soft	< 0.25	< 0.25	< 0.12	Extrudes between fingers when squeezed
Soft	0.25 - 0.50	0.25 - 0.50	0.12 - 0.25	Easily penetrated several inches by thumb
Medium Stiff	0.50 - 1.0	0.50 - 1.0	0.25 - 0.50	Can be penetrated several inches by thumb with moderate effort
Stiff	1.0 - 2.0	1.0 - 2.0	0.50 - 1.0	Readily indented by thumb but penetrated only with great effort
Very Stiff	2.0 - 4.0	2.0 - 4.0	1.0 - 2.0	Readily indented by thumbnail
Hard	> 4.0	> 4.0	> 2.0	Indented by thumbnail with difficulty

APPARENT DENSITY OF COHESIONLESS SOILS	
Descriptor	**SPT N_{60} - Value (blows / foot)**
Very Loose	0 - 4
Loose	5 - 10
Medium Dense	11 - 30
Dense	31 - 50
Very Dense	> 50

MOISTURE	
Descriptor	**Criteria**
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

PERCENT OR PROPORTION OF SOILS	
Descriptor	**Criteria**
Trace	Particles are present but estimated to be less than 5%
Few	5 to 10%
Little	15 to 25%
Some	30 to 45%
Mostly	50 to 100%

SOIL PARTICLE SIZE		
Descriptor		**Size**
Boulder		> 12 inches
Cobble		3 to 12 inches
Gravel	Coarse	3/4 inch to 3 inches
	Fine	No. 4 Sieve to 3/4 inch
Sand	Coarse	No. 10 Sieve to No. 4 Sieve
	Medium	No. 40 Sieve to No. 10 Sieve
	Fine	No. 200 Sieve to No. 40 Sieve
Silt and Clay		Passing No. 200 Sieve

PLASTICITY OF FINE-GRAINED SOILS	
Descriptor	**Criteria**
Nonplastic	A 1/8-inch thread cannot be rolled at any water content.
Low	The thread can barely be rolled, and the lump cannot be formed when drier than the plastic limit.
Medium	The thread is easy to roll, and not much time is required to reach the plastic limit; it cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit.
High	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit.

CEMENTATION	
Descriptor	**Criteria**
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

NOTE: This legend sheet provides descriptors and associated criteria for required soil description components only. Refer to Caltrans Soil and Rock Logging, Classification, and Presentation Manual (2010), Section 2, for tables of additional soil description components and discussion of soil description and identification.

8/5/2019 Boring Legend for Reports 2019.dwg

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BORING RECORD LEGEND

LOGGED BY	BEGIN DATE	COMPLETION DATE	LOCATION (Lat/Long or North/East and Datum)	HOLE ID
LDM	**3-9-23**	**3-9-23**	**37.79275° / -121.23249°**	**BC-23-1**
CONTRACTOR			LOCATION (Offset, Station, Line)	SURFACE ELEVATION
Taber				
OPERATOR'S NAME	HELPER'S NAME		EQUIPMENT	TOTAL DEPTH
Chad	**Caleb, Frank**		**CME 55 Crawler**	**51.5 ft**
EXCAVATION METHOD			DRILLING ROD TYPE AND DIAMETER / BUCKET WIDTH	BOREHOLE DIAMETER
Solid-Stem Auger/Mud Rotary				**4 in**
SAMPLER TYPE(S) AND SIZE(S) (ID)			HAMMER TYPE	HAMMER EFFICIENCY, ERi
SPT (1.4"), MCAL (2.4")			**Safety semi-automatic drop (140#/ 30")**	
BACKFILL AND COMPLETION			GROUND WATER DURING READINGS **23.0** AFTER (DATE)	CASING TYPE AND DIAMETER(in)
Tremie neat cement grout				**Steel, 6-inch**

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Nfield / Push Pressure	N60 (ASTM)	Recovery (%)	Pocket Pentrometer	Laboratory Data: Moisture Content (%)	Laboratory Data: Dry Density (pcf)	Laboratory Data: Liquid Limit	Laboratory Data: Plasticity Index	Laboratory Data: % <#200	Laboratory Data: Shear Strength Test	Laboratory Data: Additional Lab Tests	Drilling Method
	0		approximately 3-inch thick layer of TOPSOIL															
	1		SILTY SAND (SM); loose; very dark grayish brown; moist; nonplastic; mostly fine SAND; some fines															
	2			X	1	3 2 6	8		90		7	105					CR DS	
	3																	
	4																	
	5		little fines															
	6			X	2	4 11 35	46		100		9	104						
	7		dense; light gray; dry; strong cementation; [HARDPAN] SANDY SILT (ML); hard; mottled light gray and light brown; moist; low plasticity; some fine SAND	X	3	16 20 21	41		100									
	8																	
	9		SILTY SAND (SM); medium dense; reddish brown with golden specks; moist; nonplastic; mostly fine SAND; little to some fines															
	10																	
	11			X	4	8 14 19	33		55		9	103						
	12		grayish brown; low plasticity; some fines Well-graded SAND (SW); medium dense; light yellowish brown; dry; mostly fine to medium SAND; trace fines	X	5	7 9 10	19		80									
	13																	
	14																	
	15		mottled light yellowish brown and white															
	16			X	6	10 15 20	35		60		3	103						
	17																	
	18																	
	19		Lean CLAY with SAND (CL); very stiff; grayish brown; moist; medium plasticity; little to some fine SAND															
	20																	
	21			X	7	4 8 11	19		100	3.25					77			
	22		SILTY SAND (SM); medium dense; brown with golden specks; moist; nonplastic; some fines															
	23		wet															
	24																	
	25		dark gray; low plasticity; mostly fine to medium SAND; mostly fines															
	26			X	8	3 9 16	25		85	1.5	29	96			49			
	27		switched to mud rotary at 26.5 ft bgs															
	28																	
	29		Lean CLAY (CL); very stiff; dark bluish gray; moist; medium plasticity; few fine SAND															
	30																	

(continued)

BLACKBURN CONSULTING

PROJECT NAME	FILE NO.	HOLE ID
City of Manteca Well 29 TCP Treatment	**4228.003**	**BC-23-1**
COUNTY **SJ**	ROUTE	POSTMILE
CLIENT **Hydroscience**		
PREPARED BY **LDM**	CHECKED BY **RCP**	SHEET **1 of 2**

BCI LOG FOR SOIL TEMPLATE.GPJ LIBRARY_2022.GLB 4/5/23

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Nfield / Push Pressure	N60 (ASTM)	Recovery (%)	Pocket Pentrometer	Laboratory Data: Moisture Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% <#200	Shear Strength Test	Additional Lab Tests	Drilling Method
	30		Lean CLAY (CL) *(continued)*.															
	31				9	4 7 9	16		100	3.0			43	25				
	32																	
	33																	
	34		Poorly-graded SAND (SP); medium dense; brown; moist to wet; fine through coarse SAND; trace fines															
	35																	
	36				10	1 10 14	24		85									
	37																	
	38																	
	39																	
	40		light gray															
	41		material from bottom tube fell out of sampler		11	6 10 24	34		65		21.7	95			1.2			
	42		coarse SAND to fine GRAVEL in drill cuttings															
	43																	
	44		SANDY Lean CLAY (CL); very stiff; brown; moist; low to medium plasticity; some fine SAND															
	45																	
	46				12	6 7 9	16		65	3.0					79.7			
	47																	
	48																	
	49		SILTY SAND (SM); medium dense; brown; wet; nonplastic; mostly fine to medium SAND; little fines															
	50																	
	51				13	13 15 13	28		85									
	52		sampler shoe contains low plasticity; some fines Bottom of exploration at 51.5 ft below ground surface (bgs)															
	53		Tremie neat cement grout															
	54		Groundwater encountered at 23 ft bgs Bulk A obtained from 0.25 to 5.0 ft bgs															
	55																	
	56																	
	57																	
	58																	
	59																	
	60																	
	61																	
	62																	
	63																	
	64																	
	65																	
	66																	

BCI LOG FOR SOIL TEMPLATE.GPJ LIBRARY_2022.GLB 3/10/23

BLACKBURN CONSULTING

PROJECT NAME **City of Manteca Well 29 TCP Treatment**		FILE NO. **4228.003**	HOLE ID **BC-23-1**
COUNTY **SJ**	ROUTE		POSTMILE
CLIENT **Hydroscience**			
PREPARED BY **LDM**	CHECKED BY		SHEET **2 of 2**

LOGGED BY	BEGIN DATE	COMPLETION DATE	LOCATION (Lat/Long or North/East and Datum)	HOLE ID
LDM	**3-9-23**	**3-9-23**		**BC-23-2**
CONTRACTOR			LOCATION (Offset, Station, Line)	SURFACE ELEVATION
Taber				
OPERATOR'S NAME	HELPER'S NAME		EQUIPMENT	TOTAL DEPTH
Chad	**Caleb, Frank**		**CME 55 Crawler**	**11.5 ft**
EXCAVATION METHOD			DRILLING ROD TYPE AND DIAMETER / BUCKET WIDTH	BOREHOLE DIAMETER
Solid-Stem Auger				**4 in**
SAMPLER TYPE(S) AND SIZE(S) (ID)			HAMMER TYPE	HAMMER EFFICIENCY, ERi
SPT (1.4"), MCAL (2.4")			**Safety semi-automatic drop (140#/ 30")**	
BACKFILL AND COMPLETION			GROUND WATER DURING / AFTER (DATE)	CASING TYPE AND DIAMETER(in)
Top pour neat cement grout			READINGS **Not encountered**	

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Nfield / Push Pressure	N60 (ASTM)	Recovery (%)	Pocket Pentrometer	Laboratory Data: Moisture Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% <#200	Shear Strength Test	Additional Lab Tests	Drilling Method
	0		approximately 3-inch thick layer of TOPSOIL															
	1		SILTY SAND (SM); loose; light brown; moist; nonplastic; mostly fine SAND; little to some fines															
	2				1	4 4 5	9		100									
	3																	
	4																	
	5		dense to very dense; mottled light gray and light brown; dry; nonplastic to low plasticity; some fines; strong cementation; [HARDPAN]		2	33 50/2"	50/2"		100									
	6		moist; low plasticity; increasing fines content; no cementation		3	13 15 18	33		80	3.0								
	7																	
	8																	
	9																	
	10		medium dense															
	11		Poorly-graded SAND (SP); medium dense; mottled white and light yellowish brown; moist; medium SAND; trace fines		4	6 7 9	16		85									
	12		Bottom of exploration at 11.5 ft below ground surface (bgs)															
	13		Top pour neat cement grout															
	14		Groundwater not encountered Bulk A obtained from 0.25 to 5.0 ft bgs															
	15																	
	16																	
	17																	
	18																	
	19																	
	20																	
	21																	
	22																	
	23																	
	24																	
	25																	
	26																	
	27																	
	28																	
	29																	
	30																	

BLACKBURN CONSULTING

PROJECT NAME	FILE NO.	HOLE ID
City of Manteca Well 29 TCP Treatment	**4228.003**	**BC-23-2**
COUNTY **SJ**	ROUTE	POSTMILE
CLIENT **Hydroscience**		
PREPARED BY **LDM**	CHECKED BY	SHEET **1 of 1**

BCI LOG FOR SOIL TEMPLATE.GPJ LIBRARY_2022.GLB 3/10/23

GEOTECHNICAL REPORT

City of Manteca - Well 29 TCP Treatment Project

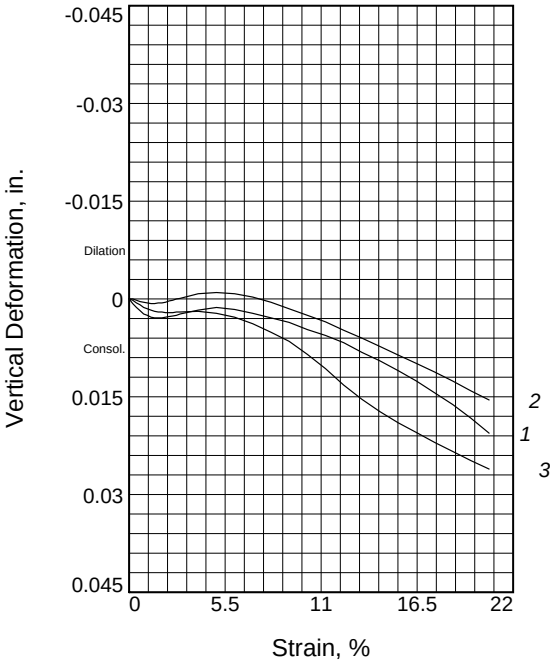
Manteca, CA

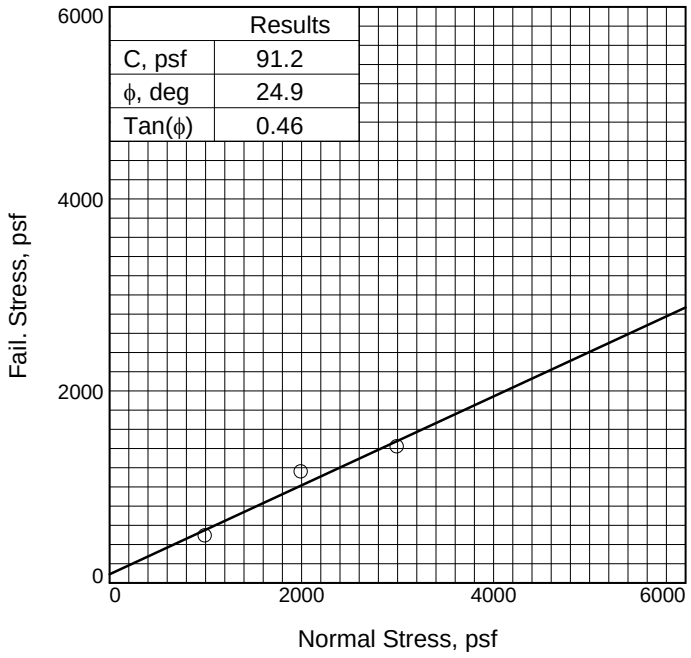
April 2023

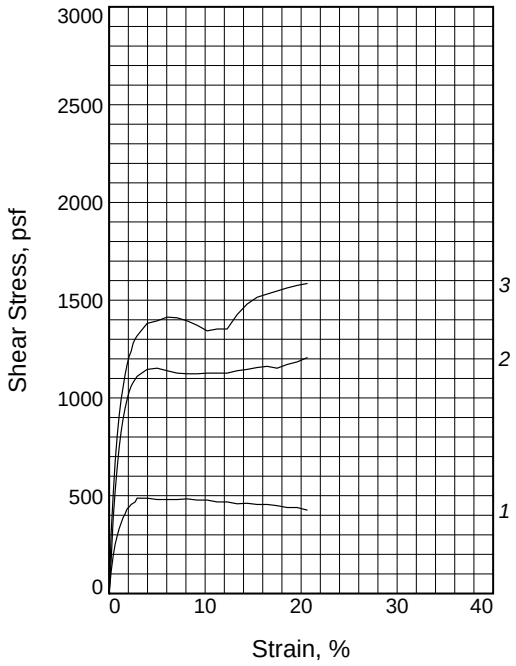
APPENDIX B

Laboratory Test Results

BLACKBURN
CONSULTING







Sample No.		1	2	3
Initial	Water Content, %	7.4	7.3	7.4
	Dry Density, pcf	104.1	106.0	106.1
	Saturation, %	32.3	33.6	33.9
	Void Ratio	0.6186	0.5896	0.5892
	Diameter, in.	2.400	2.400	2.400
	Height, in.	1.000	1.000	1.000
At Test	Water Content, %	18.7	18.2	17.7
	Dry Density, pcf	106.1	107.9	109.3
	Saturation, %	85.8	87.6	88.3
	Void Ratio	0.5885	0.5615	0.5419
	Diameter, in.	2.400	2.400	2.400
	Height, in.	0.981	0.982	0.970
Normal Stress, psf		1000.0	2000.0	3000.0
Fail. Stress, psf		487.0	1152.3	1413.3
Strain, %		2.9	5.0	6.0
Ult. Stress, psf				
Strain, %				
Strain rate, in./min.		0.003	0.003	0.003

Sample Type: CalMod
Description: SILTY SAND, very dark grayish brown

Assumed Specific Gravity= 2.7
Remarks:

Figure _____

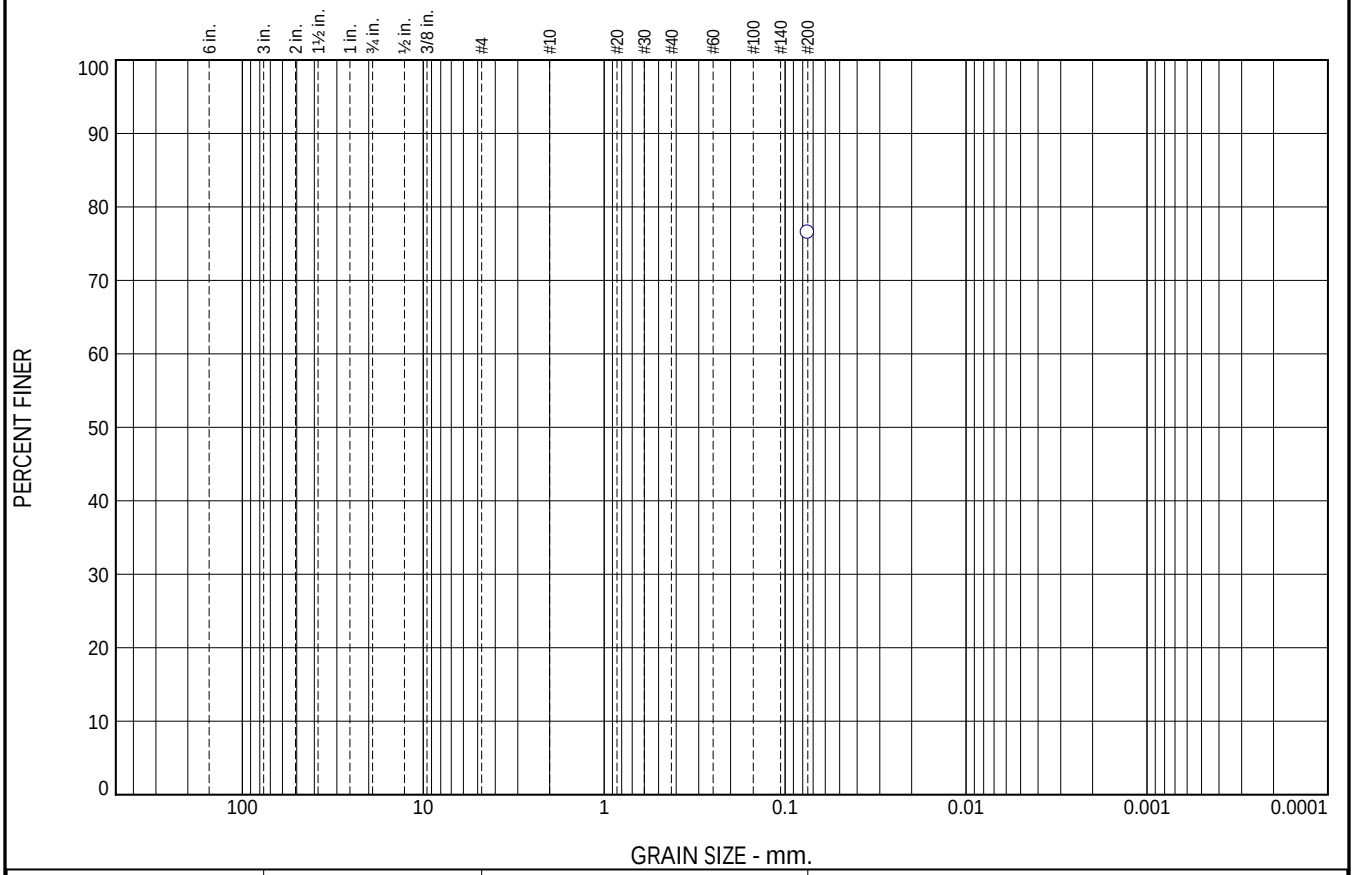
Client: Hydroscience

Project: City of Manteca Well 29 TCP Treatment

Source of Sample: BC-23-01 **Depth:** 2.5-3'
Sample Number: 1C
Proj. No.: 4228.X003 **Date Sampled:**

DIRECT SHEAR TEST REPORT
Blackburn Consulting
W. Sacramento, CA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						76.5	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	76.5		

* (no specification provided)

Soil Description

Lean CLAY with SAND, brown

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Source of Sample: BC-23-01 Depth: 21-21.5'
Sample Number: 7C Date:

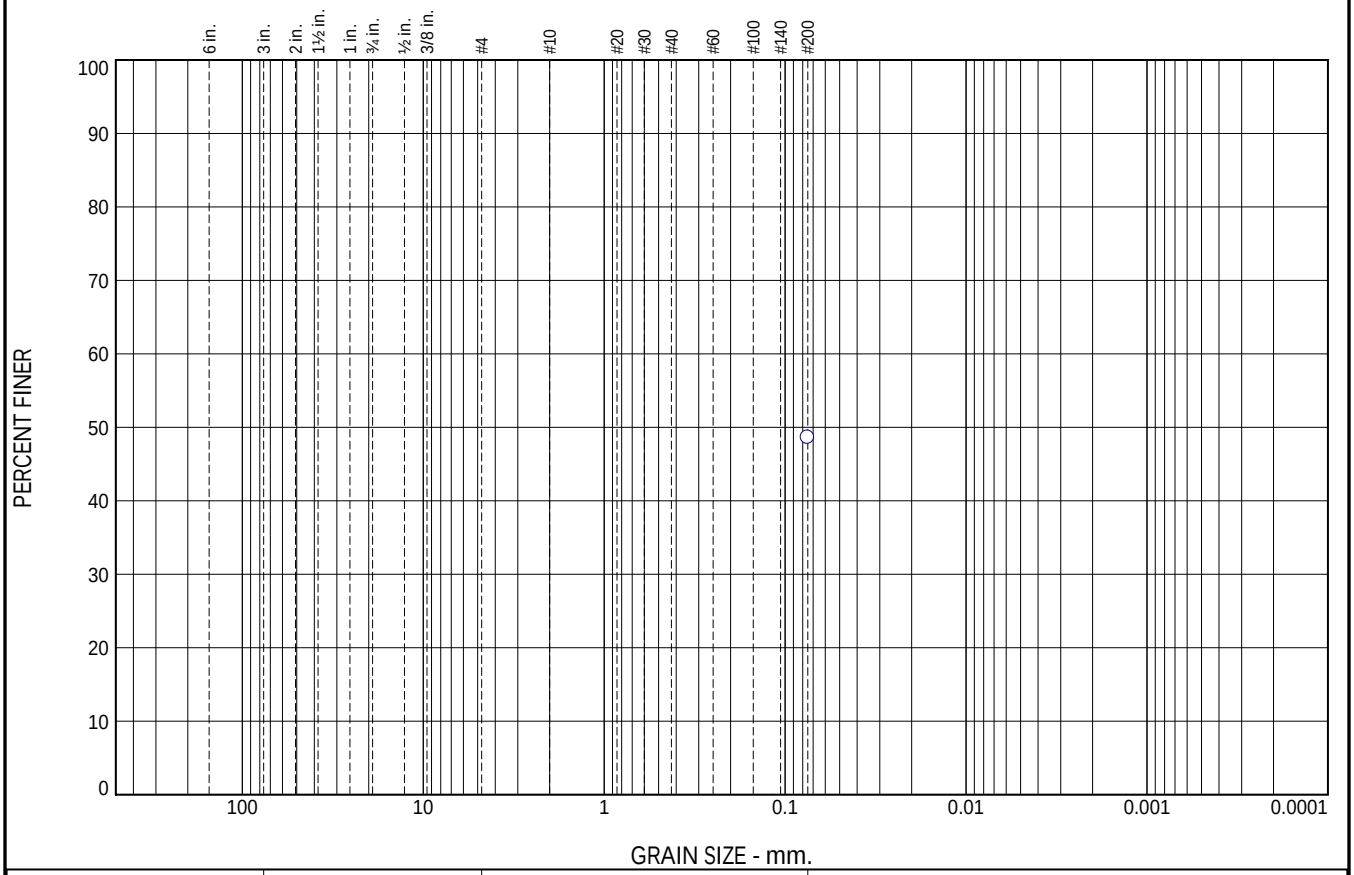
Blackburn Consulting

W. Sacramento, CA

Client: Hydroscience
Project: City of Manteca Well 29 TCP Treatment

Project No: 4228.X003 Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						48.6	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	48.6		

* (no specification provided)

Soil Description

SILTY SAND, very dark grey

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

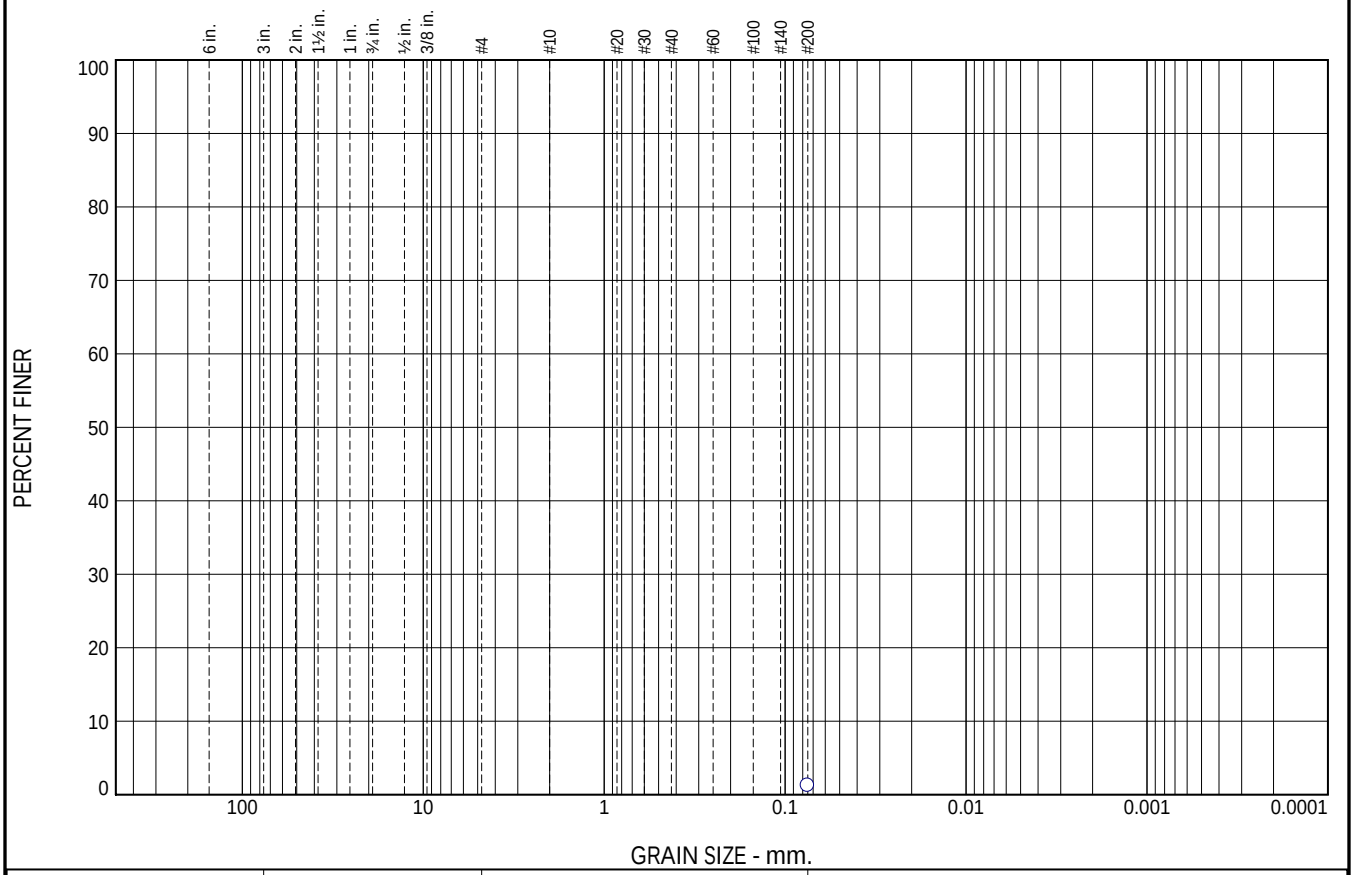
USCS= AASHTO=

Remarks

Source of Sample: BC-23-01 Depth: 25.5-26'
Sample Number: 8B Date:

Blackburn Consulting W. Sacramento, CA	Client: Hydroscience Project: City of Manteca Well 29 TCP Treatment Project No: 4228.X003 Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						1.2	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	1.2		

* (no specification provided)

Soil Description

Poorly-graded SAND, grayish brown

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SP AASHTO=

Remarks

Source of Sample: BC-23-01 Depth: 40.5-41'
Sample Number: 11B Date:

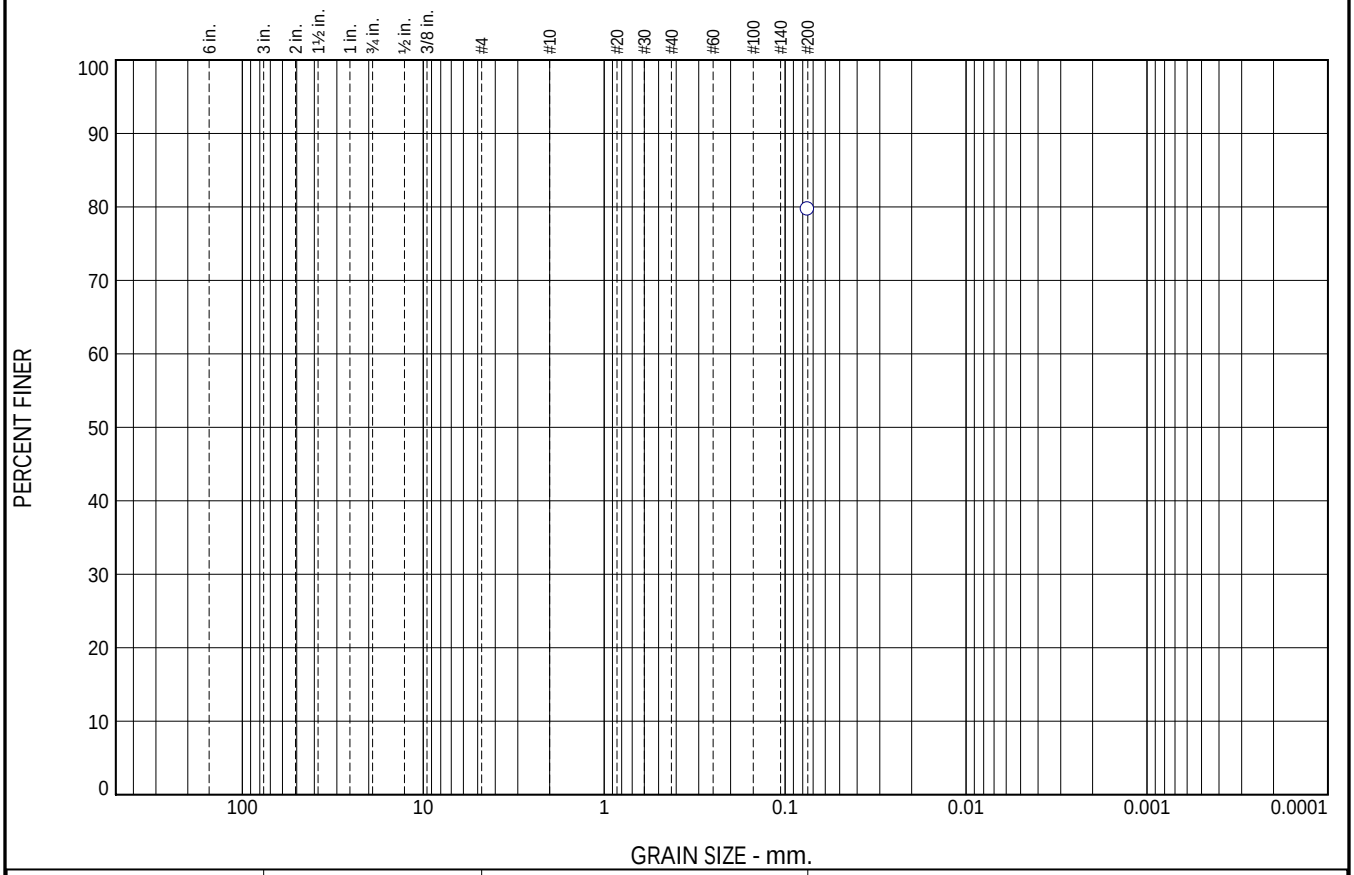
Blackburn Consulting

W. Sacramento, CA

Client: Hydroscience
Project: City of Manteca Well 29 TCP Treatment

Project No: 4228.X003 Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						79.7	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	79.7		

* (no specification provided)

Soil Description

Lean CLAY with SAND, very dark grayish brown

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Source of Sample: BC-23-01 Depth: 45-46.5'
Sample Number: 12 Date:

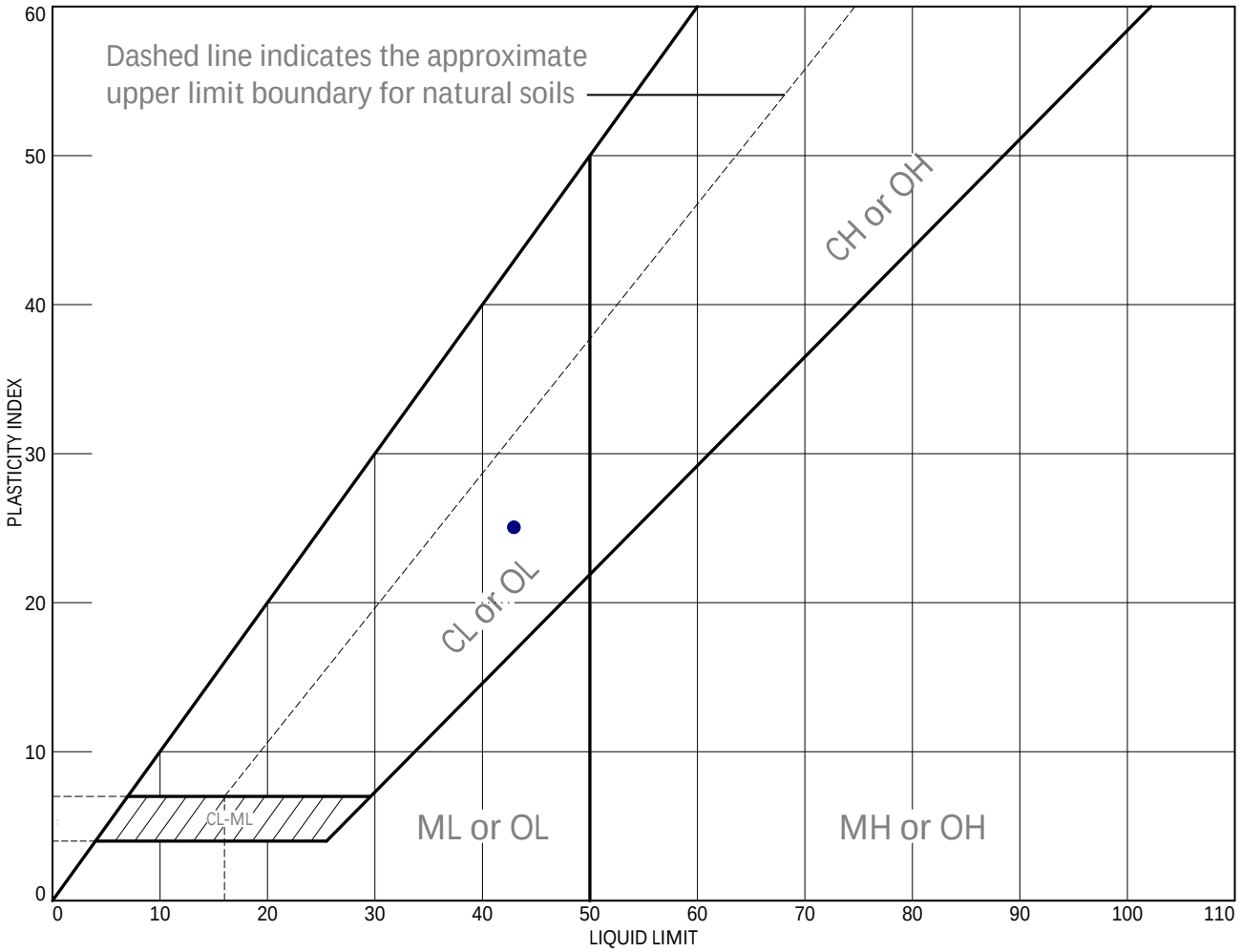
Blackburn Consulting

W. Sacramento, CA

Client: Hydroscience
Project: City of Manteca Well 29 TCP Treatment

Project No: 4228.X003 Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Lean CLAY, dark greenish grey	43	18	25			

Project No. 4228.X003 Client: Hydroscience

Project: City of Manteca Well 29 TCP Treatment

●Source of Sample: BC-23-01 Depth: 30.5-31' Sample Number: 9B

Remarks:

Blackburn Consulting

W. Sacramento, CA

Figure

Sunland Analytical

11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 03/29/2023
Date Submitted 03/24/2023

To: Rob Pickard
Blackburn Consulting (W.SAC)
2491 Boatman Ave
W. Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 4228.003 M.WELL 29 Site ID : BC-23-1-1B.
Thank you for your business.

* For future reference to this analysis please use SUN # 89239-185269.

EVALUATION FOR SOIL CORROSION

Soil pH	7.70	
Minimum Resistivity	4.82 ohm-cm (x1000)	
Chloride	3.7 ppm	00.00037 %
Sulfate	0.8 ppm	00.00008 %

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422m

GEOTECHNICAL REPORT

City of Manteca - Well 29 TCP Treatment Project

Manteca, CA

April 2023

APPENDIX C

Important Information about This Geotechnical Engineering Report, Geoprofessional Business Association, 2019

BLACKBURN
CONSULTING

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for information purposes only.* To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer's services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration*** by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

GEOPROFESSIONAL BUSINESS ASSOCIATION

Telephone: 301/565-2733
e-mail: info@geoprofessional.org www.geoprofessional.org

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APPENDIX F

Roadway Construction Noise Model

ECORP Consulting, Inc. 2023

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/9/2023
Case Description: Demolition

Description	**Affected Land Use**
Demolition	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**
Flat Bed Truck	No	40		74.3	170
Flat Bed Truck	No	40		74.3	170
Tractor	No	40	84		170
Dump Truck	No	40		76.5	170

Calculated (dBA)

Equipment	***Lmax**	**Leq**
Flat Bed Truck	63.6	59.6
Flat Bed Truck	63.6	59.6
Tractor	73.4	69.4
Dump Truck	65.8	61.8
Total	**73.4**	**70.8**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/9/2023
Case Description: Grading

Description	**Affected Land Use**
Grading	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**
Flat Bed Truck	No	40		74.3	170
Tractor	No	40	84		170

Calculated (dBA)

Equipment		***Lmax**	**Leq**
Flat Bed Truck		63.6	59.6
Tractor		73.4	69.4
	Total	**73.4**	**69.8**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/9/2023
Case Description: Underground Piping & Electrical

Description	**Affected Land Use**
Underground Piping & Electrical	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**
Flat Bed Truck	No	40		74.3	170
Flat Bed Truck	No	40		74.3	170
Tractor	No	40	84		170
Crane	No	16		80.6	170
Dump Truck	No	40		76.5	170
Roller	No	20		80	170

Calculated (dBA)

Equipment	***Lmax**	**Leq**
Flat Bed Truck	63.6	59.6
Flat Bed Truck	63.6	59.6
Tractor	73.4	69.4
Crane	69.9	62
Dump Truck	65.8	61.8
Roller	69.4	62.4
Total	**73.4**	**71.9**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/9/2023
Case Description: Paving

Description	**Affected Land Use**
Paving	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**
Flat Bed Truck	No	40		74.3	170
Flat Bed Truck	No	40		74.3	170
Concrete Mixer Truck	No	40		78.8	170
Concrete Mixer Truck	No	40		78.8	170

Calculated (dBA)

Equipment	***Lmax**	**Leq**
Flat Bed Truck	63.6	59.6
Flat Bed Truck	63.6	59.6
Concrete Mixer Truck	68.2	64.2
Concrete Mixer Truck	68.2	64.2
Total	**68.2**	**68.5**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/9/2023
Case Description: Miscellaneous Activities

Description	**Affected Land Use**
Miscellaneous Activities	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**
Flat Bed Truck	No	40		74.3	170
Flat Bed Truck	No	40		74.3	170

Calculated (dBA)

Equipment	***Lmax**	**Leq**
Flat Bed Truck	63.6	59.6
Flat Bed Truck	63.6	59.6
Total	**63.6**	**62.7**

*Calculated Lmax is the Loudest value.